Stormwater Needs Assessment Project

Fairfax County, Virginia

Stormwater Advisory Committee Recommendations to the Fairfax County Board of Supervisors

Consultant Recommendations to Fairfax County

March 28, 2005

Prepared for the
Fairfax County Department of Public Works and Environmental Services

Prepared by
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Fairfax County Stormwater Advisory Committee
Stormwater Needs Assessment Project
Summary of Discussions and Recommendations

Executive Summary:

Over the past seven months, a committee of citizens representing a broad range of interests throughout the County, worked with the Consultant Team to identify the needs, issues and challenges of stormwater management in Fairfax. Through a process of discussion paper review, consultant and staff presentation, and facilitated discussions, priorities were identified and a definition of extent and level of service was crafted to guide the Consultant in preparing a five-year program plan and funding analysis. In addition, the Committee reviewed funding options available to the County for a dedicated resource to address investments in capital improvements, water quality protection and long-term maintenance and operation of the drainage systems.

In the seventh meeting of the Committee, members developed the following statement of recommendations to the Board of Supervisors:

- **The Committee has unanimous support for a long-term dedicated source of funding for the stormwater program.**

- **The Committee embraces the County Executive's FY 2006 budget with a dedication of one-cent on the tax rate for stormwater in addition to the current level of funding.**

- **The overwhelming majority of the Committee supports the implementation of the utility fee, effective in FY 2007, for the purpose of addressing the level of service outlined in the projected program. The majority believes that the user-fee approach addresses the following issues:**

  - **Equity (*the basis upon which any one property pays for services)***
  - **Fairness *(includes all properties, as allowed)***
  - **Incentive for good practices**
  - **Stability for continuation of projects needed to be addressed in the watershed plans**
  - **Recognition of current efforts made by private land-owners in support of overall program objectives**
  - **Effectiveness over the long term, meeting long-range goals**
  - **Elimination of the Pro Rata program to provide fairness in the burden placed on the development community**
  - **Implementation of the user-fee system through the dedicated budget (FY 2006) by addition of staff and other resources**
  - **Reduction of the tax rate up to 2 cents, based on current rate of revenue generation, in FY 2007 *(to be based on actual GF expenditures in FY 2006)***

Background:

In August and September 2004, the Board of Supervisors created and appointed a citizen-based Committee to advise the staff and consultant team evaluating the program and funding needs to address stormwater issues in the County. The Committee met seven times over the period of October 2004 and March 2005.

Committee Mission and Membership:

The Fairfax County Stormwater Advisory Committee was established to:

1. Provide advice and input into identifying the *problems, needs and issues* within the current stormwater program.
2. Assist in establishing *priorities* for stormwater services in Fairfax County.
3. Provide advice on *level and extent of stormwater service*, investment in the capital program, approach to water quality protection services, and other key policies that will guide the stormwater program.
4. Review policy on stormwater *funding mechanisms*, including user fees, and explore rate methodologies, rate structures and rate bases.
5. Make *recommendations* to the Board of Supervisors regarding the dedicated funding needed to address stormwater needs in the community.

Member			Organization Represented
Mr.	Harry	Glasgow	Watershed Organization
Dr.	Omar	Kader	Small business commission
Ms.	Sally	Ormsby	No. VA. Soil and Water Conservation District
Mr.	Chris	Champagne	Commercial Property (large)
Rev.	Tim	Craig	Interfaith Community
Mr.	Russell	Wanek	Federation of Citizens Associations
Mr.	Robert	McLaren	Environmental Quality Advisory Council
Mr.	Robert	Jordan	At-large member with specific expertise
Mr.	Michael	Rolband	At-large member with specific expertise
Ms.	Jeanette	Stewart	Apt/Condo Property
Mr.	Lewis	Rauch	Fairfax County Public Schools
Ms.	Kimberly	Davis	League of Women Voters
Mr.	Mark	Trostle	No. VA. Building Industry Association
Mr.	Greg	Prelewicz	Fairfax Water (Authority)
Ms.	Jessica	Fleming	Fairfax County Chamber of Commerce
Ms.	Mary Beth	Coya	No. VA. Assoc of Realtors
Mr.	Larry	Butler	Home Owner Associations

The Committee reviewed the body of work completed during the summer of 2004 by the staff and the Consultant Team on the feasibility of changes in the overall stormwater program and the effectiveness of a user-fee system for funding the overall program. Key focus areas of discussion and recommendation are summarized below. Minutes of all meetings and discussion/policy papers prepared are attached.

Policy and Program Discussions:

A. Extent of Service

Considerable discussion regarding the extent of the physical system that should be under the management of the County resulted in the identification of the following concepts for the delineation of responsibility:

1. The County should exercise planning and regulatory authority, within its legal limits and mandates, over the entire drainage system, both publicly and privately owned. The County should continue with its current standards as set forth within the Public Facilities Manual (PFM); however, as strategies and best management practices evolve over time, the County should evaluate their standards to ensure that appropriate system performance is achieved.

2. It is recognized that the County is very limited in its influence over Virginia Department of Transportation (VDOT) drainage systems within the highway network; however, when the County partners with VDOT, every effort should be made to have the standards of system design meet the County's goals for water quality protection as well as water quantity controls. The County should consider cost-sharing with VDOT when County standards are adopted for a VDOT roadway project.

3. The County should engage the Virginia Department of Transportation in discussions regarding an increased role of the County for some state-system drainage components. The County should ensure that compensation is provided to them for any responsibility taken on behalf of the State.

4. The County needs to ensure proper operation and maintenance of the total drainage system. The County should consider phasing in the public maintenance of privately owned system components. This would follow a process of inventory and inspection of the total system, GIS-based, enabling analysis through basin models to identify high priority system improvement needs.

    a. The County should establish a standard for private facility maintenance and incorporate this standard through ordinance with enforcement strategies.

    b. The County should survey private facility owners to determine their needs and expectations.

    c. The County should evaluate, based on the information gathered through inspection of the overall system and a survey of owners, whether the County should shift its current role (inspection and regulation) regarding privately-owned

system components to providing maintenance on the private systems through executed maintenance agreements that limit County liability and clearly delineate the responsibilities of each party (i.e., owner and County).

B. Level of Service

The County should invest in resources sufficient to move the current maintenance, operation, regulation, planning and capital improvements for the stormwater system, including the protection of streams and stream corridors, to a proactive management strategy that anticipates challenges and has in place appropriate programs to provide for environmental protection and public safety, including protection from property loss. The County should adopt as a guiding principle that similarly situated properties be treated in a similar and consistent manner. This should be a long-term goal and a standard for evaluation of the effectiveness of the overall services provided on behalf of the public.

1. The County needs a replacement schedule for infrastructure and that replacement standard should be set to meet build-out conditions in the watershed.

2. The County should examine the use of innovative, non-hardened solutions to stormwater management issues. The County should utilize Low Impact Development strategies where possible.

3. The overall stormwater management program should embrace the Board of Supervisor's recently adopted *Environmental Excellence in Fairfax County: A 20-Year Vision.*

4. The County should maintain its "stream index" metric, which allows it to monitor improvements in stream health and viability.

5. The County should account for the existing physical infrastructure, regardless of ownership, and future physical infrastructure by maintaining a physical inventory, including ownership identity. This should include an effective inspection program both to maintain the inventory and to identify condition and potential improvements required.

C. Program Priorities

The principle of "similar and equal services provided to like-situated properties" should be a long term goal. The Committee reviewed the preliminary program assessment study results dated July 16, 2004 and generally concurred with the initiatives identified. The Committee offered the following emphasis on program priorities.

1. Show immediate and tangible results from an increase in funding.
2. Secure a dedicated and equitable funding source for stormwater management program.

3. Establish baseline standards to ensure equitable program application and administration.
4. Establish and enforce consistent maintenance standards for both public and privately-owned facilities, best management practices, and conveyance system components.
5. Establish an adequately funded capital infrastructure replacement program.
6. Maintain a pollution prevention program for compliance under the VPDES permit, addressing County-provided services such as construction project site compliance and facilities management.
7. Educate the public on a continuous basis to create a better understanding of the challenges the County is facing in protecting water quality and maintaining a large, aging infrastructure.
8. Provide sufficient staff to deliver the services needed.

D. Program Funding:

The Committee identified the following principles that should be followed in evaluating the primary funding strategy for the needed improvements in the stormwater program:

Table 1 – Principles for Funding Options

Principle or Goal for Funding Option	General Fund	User Fees
1. Distribute cost of services on the basis of demand for those services. (equity)	No	Yes
2. Recognize positive behaviors by land owners when they reduce impacts of discharges on peak flow and pollutant loading.	No	Yes
3. Dedicate funding to the objectives of the stormwater program so that funds cannot be redirected to other competing priorities.	Limited	Yes
4. Encourage greener development through the funding strategy.	No	Yes
5. Make the funding mechanism applicable across all property owners. (fairness)	Limited to taxable properties.	Yes, within limits based on enabling legislation.
6. Apply the funding strategy uniformly across the County.	Yes	Yes
7. Utilize bond debt to support the capital improvement program.	Yes, General Obligation Bonds with voter approval.	Yes, Revenue Bonds, with Board approval.

E. Applicability of a User Fee System and Potential Rate Impacts:

Based on the Preliminary Rate Analysis completed by the Consultant Team, the Committee reviewed the potential rate, established on a Cost of Service that utilized the following performance factors in defining resources needed to accomplish the goals.

- Bring all dams that are owned or operated by the County into full regulatory compliance within 24 months, addressing high-risk sites first. Maintain the integrity of the structures routinely, investing as necessary in rehabilitation of the dam.

- Maintain all necessary data in support of the floodplain management program and partner with FEMA to update the County floodplain maps within the first 36 months of the expanded program. Evaluate the Community Rating System program and determine an appropriate role for the County in support of this effort and implement strategies as needed.

- Provide annual, on-going support to the County Geographic Information System staff to bring the data layers that are important to the stormwater program up to date and to keep them current. This includes the update of the planametric data on imperviousness as well as other databases on the drainage infrastructure, floodplains, stormwater management facilities, etc.

- Establish a full-time dedicated position to public education on all elements of the stormwater program and services provided by the County. Expand the public education program to reach all citizens and businesses over the next five years, addressing cultural and language issues as necessary.

- Initiate the update of all Watershed Plans no later than July 2007 with the goal of completion by July 2008.

- Initiate changes in the level of service for the operations and maintenance of the County owned or operated drainage system components, to move from a “high-risk only” response capability to resolving all requests for service within 12 months of receipt from the community; as well as service needs identified by routine inspection, and emergency service issues. This may result in projects shifting to the capital improvement program at which time they would be prioritized within the overall CIP program. It is anticipated that this level of service could be achieved within the first five years of the expanded program.

- Sustain the investment in the CIP at no less than 40% of the overall stormwater program budget over the next 20 years.

- Initiate and/or maintain a program of services that will meet the requirements of the MS4 permit on an annual basis. This includes a review of the permit in FY 2006 to position the County for the renegotiation of this permit in the first quarter of FY 2007.

- Incorporate Low Impact Development strategies, after evaluation of specific BMPs, into the PFM and appropriate ordinances, beginning in FY 2006 and as technology changes; maintain an assessment protocol to determine functionality, long-term maintenance requirements, education initiatives and needed improvements. This includes inspection and testing of the LID practices over time to ensure that the County can evaluate their performance and identify changes needed.

- Complete an assessment of the existing drainage infrastructure under County ownership and/or operation, including the underground system by FY 2010 and evaluate the impact of County operation of all stormwater management facilities, including LID practices.

The Consultant presented the summary of costs anticipated for a five-year planning period to the Committee for their review. The Cost of Service is summarized by program functions as follows and the full summary can be found in the Preliminary Rate Analysis Report.

Table 2 – Summary of Costs and Preliminary Rate

Cost Center	2006	2007	2008	2009	2010	2011
Engineering and Design	$ 3,378,369	$ 2,470,923	$ 2,768,074	$ 2,770,870	$ 2,925,964	$ 2,967,492
Operations and Maintenance	$ 9,211,229	$ 11,764,281	$ 14,364,877	$ 19,251,477	$ 19,438,149	$ 21,536,414
Plan Review and Erosion Control	$ 1,398,133	$ 1,813,331	$ 1,844,062	$ 2,154,266	$ 2,301,023	$ 2,335,067
Construction Services	$ 10,209,454	$ 11,570,331	$ 16,253,445	$ 14,886,726	$ 15,633,245	$ 18,289,920
Watershed Mgmt and MS4 Compliance	$ 6,473,887	$ 5,282,079	$ 2,115,420	$ 2,261,241	$ 2,309,259	$ 2,333,641
General Expenses	$ 1,529,963	$ 3,265,111	$ 3,539,573	$ 4,139,130	$ 4,166,352	$ 4,277,039
Total Program	**$ 32,201,034**	**$ 36,166,056**	**$ 40,885,451**	**$ 45,463,710**	**$ 46,773,991**	**$ 51,739,574**
Preliminary Rate		$ 77.52	$ 77.52	$ 88.80	$ 88.80	$ 95.40

FY 2006 is included in the preliminary analysis and is recommended to be funded through general revenues of the County. The user-fee revenue would begin in FY 2007. The Preliminary Rate is shown in the above table as well. The Rate represents the annual cost for one-billing unit, which is defined as 3398 square feet of imperviousness, the recommended billing basis. The percent of billing units by land use was provided to the Committee as well.

Table 3 – Billing Unit Analysis by Land Use Category

Land Use	Number of Billing Units	Percent of Total Units
Single Family Residential	172,339	39%
Multifamily Housing		
Apartments	12,175	3%
Townhomes	43,038	10%
Condos	9,812	2.5%
Mobile Homes	1,569	0.5%
Commercial	156,132	34%
Industrial	6,691	2%
Institutional	40,913	9.5%
Total Billing Units	**442,669**	

The Committee was advised that this data is based on the initial analysis of land use and imperviousness completed in 1997 for a previous user-fee analysis. The factors were updated based on the 2004 Tax Assessors File for land use and percent increases in development.

Incorporated in the rate analysis is a strategy to address the private investment made in the overall operation and management of the drainage system, including stormwater management facilities. The rate structure includes a credit program to recognize the mitigative impacts of on-site controls and treatment facilities that reduce the demand for services from the County program. Should the Board choose to establish a utility service fee, the details of the credit program will be further defined in a Credit Manual or similar document.

The rate analysis projected the fee for one billing unit over the five year period, shown in Table 1 above, is summarized in Table 4 as follows:

Table 4 – Summary of Preliminary Rate Projection

Fiscal Year	Rate per Billing Unit	
	Monthly	Annually
2007	6.46	77.52
2008	6.46	77.52
2009	7.40	88.80
2010	7.40	88.80
2011	7.95	95.40

It is understood by the Committee that, should the County choose to pursue this funding option, an update of the rate analysis will be completed based on the creation of new data to support the billing file.

After considerable discussion and consideration of the program, as well as the goals and priorities for the next decade for the County stormwater program, an overwhelming majority of the Committee endorsed the creation of a stormwater utility funding strategy, using FY 2006 as the year to build the tools for implementation and the initiation of the fee as the primary funding strategy effective in FY 2007. The full statement of the Committee's recommendation is found on page one of this summary.

Fairfax County Stormwater Advisory Committee
Stormwater Needs Assessment Project
Meeting #1
September 23, 2004, 7 – 9 p.m.
Fairfax County Government Center
Conference Rooms 2-3

Meeting Minutes

In Attendance:

Stormwater Advisory Committee:

Chris Champagne	Mary Beth Coya	Rev. Tim Craig
Kimberly Davis	Jessica Fleming	Harry Glasgow
Robert Jordan	Robert McLaren	Sally Ormsby
Greg Prelewicz	Lewis Rauch	Michael Rolband
Jeanette Stewart	Mark Trostle	Russell Wanek

Consultants:	County Staff:	
Elizabeth Treadway	Jimmie Jenkins	Paul Shirey
Doug Moseley	Carl Bouchard	Krystal Kearns
Maureen Hartigan	Fred Rose	Scott St. Clair
	Vishnu Seri	

Special Guests:
Penny Gross, Mason District Supervisor

Meeting Agenda
1. Welcome and Introductions
2. Review of Agenda
3. Role and Mission of the Committee
4. Overview of the "Watershed Community Needs and Funding Options Study" Project
5. Challenges of Managing Stormwater in Fairfax County

Welcome and Introductions

Supervisor Gross opened the meeting with a welcome message for the committee members, noting the timeliness and importance of the County's review of stormwater management programming and the alternatives available to fund it. Mr. Jenkins reiterated Supervisor Gross' sentiments and thanked the members of the committee for their service. After each of the committee members introduced themselves, Mr. Bouchard introduced the County staff associated with the project as well as the members of the County's consulting team from AMEC Earth & Environmental that will be working with the committee on this project. Mr. Bouchard asked each of the committee members to offer their thoughts to the group on their perspective and their expectations for the project.

Review of Agenda

Ms. Treadway offered a brief overview of the meeting's agenda. She noted that before this meeting concluded, the committee would have the opportunity to schedule future meetings, review the statement included in the handout material on mission and review the process for committee work. She noted that the County and the consulting team would do everything possible to keep each committee meeting to two hours. The meetings will only continue beyond two hours with the consent of the committee members.

Role and Mission of the Committee

Mr. Moseley led a brief review of the mission of the committee. He noted that this advisory committee's role is to:

- Provide advice and input into identifying the problems, needs and issues within the current stormwater program;
- Assist in establishing priorities for stormwater services in Fairfax County;
- Provide advice on level and extent of stormwater service, investment in the capital program, approach to water quality protection services, and other key policies that will guide the stormwater program;
- Review policy on stormwater funding mechanisms, including user fees, and explore rate methodologies, rate structures and rate bases; and
- Make recommendations to the Board of Supervisors regarding the dedicated funding needed to address stormwater needs in the community.

He noted that the Committee's recommendations would address a program that can meet community needs and expectations, including how to fund it, but that the Fairfax County Board of Supervisors will make the ultimate decision on how to proceed. Mr. Moseley covered a series of basic meeting ground rules with the committee members. The ground rules are designed to help the work flow of the meetings and to allow for full and active participation by each committee member. Mr. Moseley asked if the Committee members had any additions or modifications they wanted to make to the list of Ground Rules. None were offered.

Mr. Moseley requested that the Committee establish a schedule for the five remaining meetings. After a brief discussion, the Committee decided that the second Tuesday of the month would be the best meeting day and that evening meetings were preferable to other meeting times. In addition, the committee decided that the Government Center was as convenient a meeting location as any. Based on this input, the committee's next meeting will be Tuesday, October 12, 2004 at 7 P.M. in the Fairfax County Pennino Building (opposite the Fairfax County Government Center). Future meeting dates were set for November 9, 2004; December 14, 2004; January 11, 2005; and February 8, 2005.

Mr. Moseley concluded the agenda item with a brief discussion of the process for committee work. The County and the consultant will develop draft policy discussion papers for the committee's consideration and distribute the draft papers to the committee one week prior to each meeting. The policy issue will then be addressed at the next

committee meeting where the committee will provide input, feedback, raise questions, and discuss the issues. With the feedback from each discussion, the County and the consultant will then revise the policy discussion paper and build a policy statement from the discussion. The policy statement will then be reviewed at the following committee meeting, which should lead to general agreement on the statement by the members. Committee members asked what was meant by the term "agreement" on policy statements. Mr. Moseley noted that it was not necessary to gain 100 percent consensus on each policy, but rather to gain informed consent, or a general agreement that the policy statement accurately reflects the thoughts of the committee.

Overview of the "Watershed Community Needs and Funding Options Study" Project

Mr. Bouchard opened the overview with a brief discussion of stormwater management in Fairfax County and a review of the County's various stormwater-related initiatives dating back to the 1970's. He noted the County's recent stormwater strategic planning effort, which expressed, among other needs and ideas, the concept that service levels for stormwater programs should be based on actual needs and those service levels should be supported by adequate and stable funding. That finding, in part, contributed to the County undertaking this needs assessment project.

Ms. Treadway covered some of the history and findings from the first phase of this project. In the first phase, the County and the consultant clarified some of the County's stormwater management challenges and identified some potential funding strategies for stormwater service. Ms. Treadway reviewed some of the first phase findings, noting current services provided by the County, outlining the physical system the County has the responsibility to manage, and outlining some of the County's management challenges. Those findings were incorporated into a phase I final report, which was presented to the Board of Supervisors on July 16, 2004. The first phase of the report is available on the Internet at <http://www.fairfaxcounty.gov/dpwes/stormwater>.

One recommendation made to the Board was the creation of this advisory committee and the County staff was authorized to proceed with the second phase of the project, centering on finalizing program recommendations based on public input, completion of the cost analysis and funding options analysis, and reporting the study's findings back to the Board in February 2005.

Challenges of Managing Stormwater in Fairfax County

To follow up on the points raised in the final report for phase I of the project, Mr. Rose presented a comprehensive overview of the challenges that the County currently faces in addressing its stormwater management concerns. Mr. Rose focused on the physical system itself, noted the regulatory mandates for water quality the County faces, and also noted the County's recent flooding, stream stabilization, and stream scour and erosion concerns. He highlighted some of the County's recent stormwater management studies, including the Stream Protection Strategy (SPS) and the recently completed stream physical assessment. He noted that the County has watershed plans underway for several of the County's subwatersheds.

Participants noted that the number of houses that have suffered flood damage seemed low. They also noted that road flooding may be an issue beyond the County's ability to influence since any road drainage improvements would fall under the responsibility of

the Virginia Department of Transportation. However, it was also acknowledged that the County has a vast infrastructure to maintain and acknowledged the problems presented by Mr. Rose.

Additional Discussion

Prior to Mr. Rose's presentation, participants provided feedback and recommended clarifications on the "Frequently Asked Questions" paper that was in the background materials distributed to the Committee prior to the meeting. Committee members noted that on the topic of erosion and sediment control, the County may wish to include information on bare ground as a potential source. They also noted that the County may wish to include "the planting of native species" under the section discussing what homeowners can do to improve water quality, noting that turf grass may not have as much water quality benefit as native vegetation. Finally, participants noted that the County may wish to include a broader definition under the section on "what is stormwater runoff?" to include a description of how stormwater moves across the land and ends up in the County's creeks and streams , including a some description of the impact that stormwater best management practices (BMPs) can have on the quality and quantity of stormwater runoff. This feedback will be addressed in an update of the FAQ.

The meeting adjourned at 9:05 PM.

Next Meeting

The next meeting of the Fairfax County Stormwater Advisory Committee will be held on October 12, 2004 at 7 P.M. in the Fairfax County Pennino Building.

Fairfax County Stormwater Advisory Committee
Stormwater Needs Assessment Project
Meeting #2
October 12, 2004, 7 – 9 p.m.
Fairfax County Pennino Building
Room 206 A and B

Meeting Minutes

In Attendance:

Stormwater Advisory Committee:

Kimberly Davis	Jessica Fleming	Harry Glasgow
Robert Jordan	Robert McLaren	Sally Ormsby
Greg Prelewicz	Michael Rolband	Mark Trostle
Mary Beth Hoya		

Consultants:	County Staff:	
Elizabeth Treadway	Jimmie Jenkins	Paul Shirey
Doug Moseley	Carl Bouchard	Krystal Kearns
Curt Ostrodka	Fred Rose	Scott St. Clair
	Vishnu Seri	Laura Grape
	Debra Bianchi	Michelle Brickner

Meeting Agenda

1. Welcome and Introductions
2. Review of Agenda
3. Stormwater Program Services in Fairfax County
4. Level of Service Discussion

Welcome and Introductions

Carl Bouchard, Director of the Stormwater Planning Division, opened the meeting with a welcome message for the committee members and reiterated the County's thanks for their service. He reintroduced each committee member to the group, as well as the County's consulting team.

Review of Agenda

Mr. Moseley offered a brief overview of the meeting's agenda. He asked the committee if they had comments on the previous meeting's minutes. No comments on the minutes were offered. The committee then posed a question to the County about its mission, noting that perhaps the meetings should focus primarily on "how to sell" the stormwater

utility fee to the Board of Supervisors. Mr. Bouchard noted that the purpose of the committee is to test the conclusions reached in the first phase of the project, and that a stormwater utility is not presupposed. The committee must review all of the available funding options, as well as determine the appropriate level of service based upon the expectations of the citizens. The committee did note that not every participant is a stormwater expert, and it is therefore necessary to proceed accordingly.

Stormwater Services in Fairfax County

Mr. Bouchard reviewed the services that the Stormwater Planning Division (SPD) provides to the citizens of Fairfax County. SPD's main program areas include:

- Capital Improvement Projects
- Stormwater Management
- Watershed Assessment and Monitoring
- Emergency Preparedness
- Public Outreach and Involvement
- Development Plan Review and Support

The SPD must also comply with state and federal mandates and regulations, many of which are unfunded. These mandates and regulations include:

- Municipal Separate Storm Sewer System (MS-4) Permit
- Virginia Tributaries Strategy
- Total Maximum Daily Loads (TMDLs)
- Chesapeake Bay 2000 Agreement

Mr. Bouchard noted that although SPD is providing many valuable services to Fairfax County, the division is unable to meet current community needs, capital improvement requirements and requests for assistance. For example, SPD is currently only implementing projects under categories 1 and 2 (usually emergency projects such as house flooding) of the Board of Supervisor's seven Priority Project categories. In addition, SPD recognizes that adequate resources for Watershed Management Plan implementation, which will protect and restore the County's streams, as well as comply with state and federal regulations are lacking. Finally, SDP is unable to provide an improved response time to its customer base.

Scott St. Clair, Director of the Maintenance and Stormwater Management Division (MSMD), reviewed the services that MSMD provides to Fairfax County. The MSMD is responsible for the following programs:

- **Storm Drainage**
- Snow Removal at County Government Facilities
- Emergency Response (Fire & Rescue)
- **PL566 (State Regulated) Dams**
- Commuter Rail and Park-n-Ride Parking Lots
- **Stormwater Management**
- Street Name Signs
- Walkways and Trails
- Bus Shelters
- Fairfax County Road Maintenance and Improvement Program

Mr. St. Clair continued the discussion by reviewing the County's physical inventory of storm drainage and stormwater management infrastructure. The County's inventory as presently captured is as follows:

		Fairfax County	VDOT	Property Owner
	Pipes	1,400 miles	1,000 miles	200 miles
Conveyance and Collection System	Inlets & Catch Basins	37,000	40,000	8,000
	Improved Channels	25 miles	20 miles	10 miles
	Natural Streams	800 miles	5 miles	400 miles
Stormwater Management Facilities	Onsite Facilities	1,100 facilities	75 facilities	2,200 facilities
	Regional Facilities	45 facilities	4 facilities	15 facilities

Mr. St. Clair noted that MSMD developed a work order prioritization in 2001 to address citizen requests for assistance. **Priority 1** work orders refer to a *Failed-Emergency* condition, such as a house flooding, structural endangerment, or roadway flooding that is a high risk to citizen safety. **Priority 2** work orders refer to a *Failed – Critical and Non-Emergency* condition, such as an obstructed inlet or channel. **Priority 3** work orders refer to a *Poor* condition, such as a highly eroded stream channel or a cracked headwall. Mr. St. Clair noted that the average time needed to complete a Priority 1 work order has increased from 28.9 days in 2002 to 41.9 days in 2004. It was noted that response time for all three priority repairs is increasing.

Mr. St. Clair stated that MSMD's maintenance work is limited to the repair and correction of existing facilities. Based on available resources, the division limits its maintenance-related activity to three to five crew days. If a maintenance request exceeds five crew days in effort, the site is stabilized/addressed to the extent possible in the time period and the work order is referred to either Capital Projects (for things like emergency house flooding) or to the Replacement Program, which is currently unfunded.

The group then discussed the services and responsibilities of the MSMD. If stormwater runoff leaves a VDOT right-of-way, then MSMD is responsible to provide service. It was noted that VDOT is not required to meet the performance standards set in the Fairfax County Public Facilities Manual (PFM). Mr. St. Clair stated that regular inspections of VDOT ponds can prevent early failures. He noted that MSMD has one inspector for every 60-70 sites.

The County can only perform maintenance on properties that have existing County easements. The committee inquired as to the division's current budget to perform all of the noted maintenance activities. Mr. St. Clair noted that as the demand for service has increased over the past five years, the amount of funding in the division's budget for

maintenance activities has decreased. Mr. St. Clair estimated that one full year of maintenance work has been lost due to funding cuts over the last five years. As part of MSMD's maintenance service, the division does examine its pipe and conveyance system. However, MSMD's examination only includes a visual check with mirrors and flashlights to detect obvious pipe obstructions. Mr. St. Clair stated that MSMD does not have an infrastructure replacement program or schedule at this time. He noted that a targeted inspection program to perform infrastructure assessments would help the County understand which pipes are failing; many of the pipes are near or past their 45-50 year anticipated life. Mr. St. Clair stated that a consultant team is currently digitizing pipe locations to create an inventory in a limited manner.

Level and Extent of Service Discussion

Ms. Treadway asked the committee members to think about how they would answer three basic questions related to the level and extent of stormwater service:

1. What is the geographic responsibility of Fairfax County?
2. What components of the physical system should the County be responsible for?
3. What is the desired level of service?

The committee noted that level of service is already defined by the PFM and other building standards, but that most of the existing conveyance pipes are built to older standards, and as such, maintaining them to their existing level will only perpetuate problems downstream.

Committee members discussed whether the County should consider taking over responsibility for the entire physical stormwater drainage system, including private facilities. Such a shift in County responsibility could be accomplished either through a "top down" policy whereby the County would provide all maintenance unless otherwise requested by the property owner, who would then be responsible for BMP maintenance, or by simply offering maintenance at the property owner's request if the owner agrees to bring the BMP/structure up to its designed operating standard. Private owners that maintained their own BMPs could be given an appropriate credit on a utility fee if they agree to adequately maintain their facilities and such conditions are routinely inspected. The committee noted that the service fee must be equitable and that the County must provide services that the community will be able to recognize and value, in order to charge the fee.

The committee discussed the need for equity in determining and implementing a stormwater utility fee. Several committee members noted that the County should maintain all property, including private facilities, in order for the utility fee to be effective and to enforce a consistent standard. County staff stated that over half of all private facilities require major rehabilitation; private facilities do not have performance standards, and are only penalized if there is a health hazard.

On-site and off-site services were discussed, and the committee noted that owners with on-site stormwater facilities should receive credits against a stormwater utility fee, perhaps depending on the type of on-site facility present. For example, a private wet pond may provide a higher level of stormwater control (quantity and/or quality) than a

private dry pond; therefore, the wet pond owner should receive higher level of credit against its utility liability. Ms. Treadway stated that the rate structure and credit system will be fine tuned to reflect the needs of a large and diverse community.

The committee asked for examples of successful stormwater utility fees that employed the use of credits. Ms. Treadway agreed to provide examples.

The committee discussed whether the industry building standards should be updated, and whether facility replacements should be based on current standards. General agreement was achieved that a feedback loop should be incorporated to keep maintenance and design standards current. As development has changed watershed hydrology throughout the County, the committee asked if an adequate SWMM model has been developed to describe stormwater flow for the entire physical system. County staff noted that the modeling results from the Watershed Management Plans, currently underway, will not provide flow data for individual pipes, but will describe smaller 100-acre sub watersheds.

Other suggestions forwarded by the committee for stormwater services included the promotion of the use of Low Impact Development (LID), daylighting, and stormwater pond retrofitting, including detaining and treating stormwater on-site whenever possible.

Ms. Treadway then asked the committee how Fairfax County should meet and comply with state and federal regulatory mandates. The committee noted the need to embrace the Board of Supervisor's agenda to protect and restore streams, noting that the streams will only get worse. County staff suggested that the Stream Protection Strategy results could be used as a measuring stick, and stated that SPD is developing a new streams index metric that describes stream quality.

In response to committee questions about the County's Total Maximum Daily Loads (TMDL) and impaired streams, County staff indicated that the Virginia Department of Environmental Quality (DEQ) has the right to impose regulatory conditions of Fairfax County to correct water impairments. It is then Fairfax County's responsibility to implement the plan to improve water quality above minimum standards. County staff noted that the County is in violation for excess bacteria in water, but it is produced largely by wildlife, not humans. The committee asked for a fact sheet that describes all voluntary and regulatory requirements for Fairfax County. Ms. Treadway agreed to provide the committee with this information.

County staff noted that the Board of Supervisors would not necessarily like to see an increase in County staff size. However, the implementation of a stormwater utility fee will likely require at least some additional staffing. Ms. Treadway noted that the County can outsource services where is it appropriate, but it is unrealistic to expect no increases in staff size with a change in the level and extent of service for stormwater.

The meeting adjourned at 9:05 PM.

Next Meeting

The next meeting of the Fairfax County Stormwater Advisory Committee will be held on November 9, 2004 at 7 P.M. in the Fairfax County Government Building.

Fairfax County Stormwater Advisory Committee
Stormwater Needs Assessment Project
Meeting #3
November 9, 2004, 7 – 9 p.m.
Fairfax County Government Center
Rooms 4 and 5

Meeting Minutes

In Attendance:

Stormwater Advisory Committee:

Kimberly Davis	Jessica Fleming	Lewis Rauch
Robert Jordan	Robert McLaren	Sally Ormsby
Greg Prelewicz	Michael Rolband	Christopher Champagne
Omar Kader	Jeanette Stewart	Larry Butler

Consultants:	County Staff:	
Jean Haggerty	Jimmie Jenkins	Paul Shirey
Doug Moseley	Marlae Schnare	Krystal Kearns
Curt Ostrodka	Fred Rose	Scott St. Clair
	Danielle Derwin	Tanya Amrhein
	Debra Bianchi	

Meeting Agenda

1. Welcome and Introductions
2. Review of Agenda
3. Level and Extent of Service
4. Program Priorities

Welcome and Introductions

Jimmie Jenkins, Director of the Department of Public Works and Environmental Services, opened the meeting with a welcome message for the committee members and reiterated the County's thanks for their service.

Review of Agenda

Mr. Moseley offered a brief overview of the meeting's agenda and asked the committee for any comments on the previous meeting's minutes. He clarified a question about the list of responsibilities of the Maintenance and Stormwater Management Division (MSMD) by noting that this is the list that was shown on a slide in the previous presentation by Mr. St. Clair at the previous meeting. Mr. Moseley also noted that Wetlands Permitting section in the *Background on County Water Resource Mandates* paper would be revised

and recirculated to the committee with some clarifications provided by one of the committee members.

In reviewing the evening's agenda, Mr. Moseley emphasized to the committee that their primary purpose is to develop a **policy statement** on the level and extent of stormwater service that will be presented to the Board of Supervisors. That leads to a discussion on the County's stormwater service program priorities for stormwater service, which is the second major item on the agenda.

Level and Extent of Service

Ms. Haggerty provided an overview of the *Level and Extent of Service* draft policy statement. The committee discussed the issue of operations and maintenance of various components of the drainage infrastructure and identified the disparities between the levels of service provided by the County and by the Virginia Department of Transportation (VDOT) as a concern. The committee noted that VDOT primarily uses dry ponds for stormwater management, which provide few water quality benefits. Many of the ponds capture small drainage basins and are required to have a minimum 3" orifice, which, based on impoundment size, does not detain water long enough to allow infiltration. The committee agreed that when the County and VDOT build roads jointly, they should be built to the County's stormwater management standards. The committee noted the optimal option of reaching an agreement with VDOT to use County standards for all future roads built by VDOT, but also noted that VDOT cannot bend to a myriad of different standards throughout the state, so it is therefore important to carefully select those issues where partnerships may be possible. Furthermore, they stated that VDOT should be encouraged to use Low Impact Development (LID) practices, or to retrofit existing facilities to improve and enhance the current level of stormwater service. The group supported an idea to contribute Fairfax County funds to VDOT projects when those projects meet County standards.

The committee stated that the policy statement should include more proactive language in regards to the use of LID. They suggested that the County "should include LID where possible."

The committee discussed the ongoing County effort to develop a "Stream Quality Index" metric to measure the progress on improving water quality and stream health. The index will provide a baseline and set goals for improvement. The committee supported the use of the index, and stated that the utility fee should be used to keep the index up to date.

The committee agreed that private owners should retain the option to perform maintenance on private stormwater facilities. The committee then discussed ideas of the best way to ensure proper operation and maintenance of the County's stormwater management infrastructure and BMPs. The group agreed that if a private owner maintains a stormwater maintenance facility, then that owner should receive a credit that would be applied toward a utility fee. The group noted that some facility owners may be willing to maintain a private facility, but may lack the resources to do so while others may simply wish to have the County provide maintenance services. The group agreed that private ponds will require County inspection to determine their functional status, and that it is important to develop a consistent standard for inspections. If a private facility is

inspected by the County and determined to be non-functional, the owner will not receive a credit against a stormwater service fee. Facility owners who want the County to provide maintenance services will need to provide the County an access easement to the facility.

The committee noted that the County currently has difficulty maintaining the 1,100 public facilities for which it is currently responsible. If the County were to assume maintenance responsibility for all facilities, be they public or private that would add another 2,200 private facilities to the County's active service responsibilities. At present, "public" ponds include residential dry ponds, Homeowner Association dry ponds (if the County has an easement), and regional ponds only. Private ponds are residential wet ponds and all other ponds, including commercial and industrial stormwater ponds. The group agreed that a more moderate, "phased-in" approach would be the best way to provide maintenance for all facilities in the County. They noted that the County would face cost and liability issues if it provided maintenance to private facilities; the pros and cons of such a policy should be included in the policy statement.

The group noted that requirements for public easements on private facilities might deter private owners from allowing the County to perform maintenance. They suggested a survey of a representative sample of private facility owners to determine needs and expectations. They noted that maintenance standards vary for public and private facilities. Credits under a user-fee strategy will be provided only if proper maintenance is performed. It was suggested that all new private facilities be required to provide public easements.

The committee suggested that maintenance agreements be amended to account for water quality. The committee agreed that a goal for the policy statement should be to have all facilities functioning properly and requested more information on potential credits to be granted to large commercial properties under a user-fee funding strategy.

Ms. Haggerty noted that utility credit systems are generally based on the resources that the County saves by not having to provide service. Credits are also generally based upon the function of the facility generating the credit (i.e. BMPs that improve water quality may be eligible for more credits than facilities that do not provide similar benefits). Mr. Moseley stated that the committee will have the opportunity to explore a potential credit structure and the fiscal impact of providing credits at a future meeting during discussion of funding options.

The committee noted that countywide maintenance of private ponds should be phased in over time and that the facilities posing the greatest risk should be addressed first. Mr. Jenkins suggested that the program should include an ordinance that states all private ponds must be functioning correctly. He also suggested that private owners who want to maintain their facility should have maintenance standards specifically written into the ordinance. Mr. Moseley noted that many private ponds provide multiple services, such as landscaping/aesthetic qualities and recreation (stocked for fish, etc.), and as such, the County will need to define the functions designated for County service.

The committee asked for clarification on the correct flow rate and frequency of storm that the Public Facility Manual requires for the County to provide maintenance service at

residential properties. AMEC agreed to clarify this question. The committee agreed that lot sizes are highly variable, and that lots are not an appropriate metric for determining if the County should provide maintenance service.

The committee also discussed methods for disseminating information to the public on the programs necessary to make improvements to system performance, stream health and public safety. They noted that while some residents are aware that several County streams are unhealthy and need restoration, the majority of residents do not know what stormwater management is and why it is important. Mr. Moseley stated that the program will include a tremendous public outreach campaign to both determine, as well as manage, citizen expectations, noting what is achievable and a timeframe for those achievements.

Program Priorities

Mr. Moseley provided an overview of the *Stormwater Program* discussion paper and asked the committee to discuss the stormwater priorities in Fairfax County. The group agreed that public outreach is critically important. As discussed previously, not all residents of the County realize that stormwater runoff is a problem. Many residents still may only view stormwater as a quantity issue, wanting to convey stormwater off their property as quickly as possible.

The group agreed that the first priority should be to secure a dedicated funding source for stormwater management. They discussed amending the development review process criteria that affect the program priorities, such as providing a way to integrate LID into new developments. Committee members noted that there is much community interest in LID, and that the County should investigate alternatives under the user-fee funding option that may provide for a stormwater fee credit for homeowners with LID facilities. Mr. Jenkins stated that the Board of Supervisors will make the final policy decision on the use of LID.

The committee also discussed how to frame the County's stormwater management goals utilizing a dateline rather than simply noting a timeline horizon. The committee noted that if the County set priorities over the coming decades, using the years 2010 and 2020 as benchmarks to measure improvements, those time representations (in actual years rather than just saying in the next 20 years…) seem more realistic and measurable, especially in terms of capital project implementation and backlog reduction. They agreed that they should target "low hanging fruit" to demonstrate early successes, as well as select projects that will provide the highest benefits at the lowest costs. The committee agreed that the protection of public health and safety is an overarching goal of the program.

The committee discussed the watershed plans and if they should be implemented before addressing the capital backlog and the rehabilitation of existing facilities. Mr. Shirey noted that the watershed plans are included the capital backlog estimate presented to the Committee. The committee noted that the watershed plans have many non-structural aspects, such as regulatory compliance and public education. Mr. Jenkins stated that the County will prioritize the proposed project actions in the watershed plans but that not all of them may be implemented.

The committee then revisited the discussion of how the County should work with private facility owners who are willing to provide maintenance but lack the resources to do so. Among the suggestions provided was the establishment of a low-interest, revolving loan fund. While the committee agreed that case-by-case negotiations may be necessary to meet minimum public health and safety standards, they also recognized that even case-by-case negotiation will require the establishment of baseline standards so as to avoid any inequitable application of programming.

Mr. Jenkins stated that the Board of Supervisors will likely request a preliminary magnitude of costs if the County is to take over maintenance of all private facilities. Mr. Moseley noted that should the County choose to fund the stormwater program through a user-fee, the utility fee structure is flexible and can change over time to reflect the program priorities as they evolve. Ms. Haggerty stated that the initial program must be developed before policy for a user-fee can be developed such as the rate structure. Mr. Moseley also reiterated that one of the purposes of this Stormwater Advisory Committee is to test the initial conclusions of the July 2004 Community Needs Assessment and Funding Options study.

The meeting adjourned at 9:05 PM.

Next Meeting

The next meeting of the Fairfax County Stormwater Advisory Committee will be held on December 14, 2004 at 7 P.M. in the Fairfax County Herrity Building.

Fairfax County Stormwater Advisory Committee
Stormwater Needs Assessment Project
Meeting #4
December 14, 2004, 7 – 9 p.m.
Fairfax County Herrity Building

Meeting Minutes

In Attendance:

Stormwater Advisory Committee:

Larry Butler	Jessica Fleming	Jeanette Stewart
Robert Jordan	Christopher Champagne	Sally Ormsby
Greg Prelewicz	Michael Rolband	Mark Trostle
Harry Glasgow	Mary Beth Coya	

Consultants:	County Staff:	
Elizabeth Treadway	Jimmie Jenkins	Paul Shirey
Doug Moseley	Carl Bouchard	Scott St. Clair
Curt Ostrodka	Fred Rose	Krystal Kearns
	Marlae Schnare	Vishnu Seri
	Danielle Derwin	Tanya Amrhein
	Debra Bianchi	Michelle Brickner

Meeting Agenda

1. Welcome and Introductions
2. Review November 9, 2004 Meeting Minutes
3. Final Policy Statement on Level and Extent of Service
4. Program Initiatives to Address Priorities
5. Funding Options – User Fee and General Revenues
6. Next Steps

Welcome and Introductions

Carl Bouchard, Director of the Stormwater Planning Division, opened the meeting with a welcome message for the committee members and reiterated the County's thanks for their service. He noted that several Stormwater Advisory Committee members are attending the concurrent Environmental Quality Advisory Council (EQAC) meeting.

Review November 9, 2004 Meeting Minutes

Mr. Moseley offered a brief overview of the meeting's agenda and asked the committee for any comments on the previous meeting's minutes. No comments were offered. He noted that the attendance roster has been corrected.

Final Policy Statement on Level and Extent of Service

During the discussion regarding service area, level, and extent of stormwater services a clarification was requested regarding whether VDOT is required to comply with the same water quality regulations that are mandatory for Fairfax County. The Committee was advised that while the County must maintain and comply with a Phase I National Pollutant Discharge Elimination system permit, VDOT must comply with the second Phase II permit standards. Communities of 100,000 residents or greater must meet the 19 minimum control measures under Phase I. Phase II requires only six minimum control measures. Mr. Moseley noted that VDOT roads could be maintained to County standards through a cooperative agreement, but it will require consistency between the Public Facilities Manual and VDOT's drainage manual. Mr. Moseley noted that it is unrealistic for the County to take over all maintenance responsibilities from VDOT; however, the County can take advantage of opportunities where appropriate, through negotiations with VDOT.

The Committee then discussed the limits of the service area. Mr. Moseley stated that the service area has not been fully defined yet, but the Committee will determine the "upstream limits" after consideration of the program priorities. This prompted a discussion on the County's current authority over the drainage system. The group noted that regulatory authority is exercised during the development process for all properties under the County legal oversight. On-going oversight is limited to existing impoundments. Homeowner Association ponds are not under County authority unless there is a maintenance agreement with a dedicated easement in place. Mr. St. Clair stated that private facilities are inspected once every five years. The County only has the authority to maintain private facilities if there is an immediate health hazard or danger of flooding. Approximately 350 out of 2,200 private facilities have maintenance agreements; no authority is provided for farm ponds. Additional discussion focused on the current standard of the mandate to dedicate an easement to the County for maintenance. This standard is set at a flow rate of 2 cubic feet per second, using a 10-year design storm event (i.e., at storm that has a one in ten probability of occurring in any given year). The Committee did not recommend any change in this current standard.

One component of the draft Level of Service policy statement is to "embrace the Board of Supervisor's recently adopted environmental principles". Mr. Moseley clarified are these principles are available on Chairman Connelly's webpage:
< http://www.fairfax.va.us/gov/bos/chair/environmental_plan.htm >

Program Initiatives to Address Priorities

The group discussed the proposed upgrade of all stormwater facilities within the next 10 years. Mr. Moseley stated that stormwater facilities should be upgraded to address water quality as well as water quantity and ensure that they perform as designed.

The current recommendation from AMEC is that the Capital Improvement Program "buy down" the backlog of projects over the next 20 to 40 year period. He noted that the CIP implementation strategy is not final, and can be modified.

To increase efficiencies in management of the watershed-based program planning and implementation, it is recommended that the County be divided into four quadrants with a planning team assigned to each. When asked about dividing the watershed planning area into quadrants, he clarified that the quadrants would be drawn where they make hydrologic sense, and would not be evenly divided without respect to topology.

Mr. Moseley asked the group to consider if the proposed program priorities are still valid, if any program elements are missing, and how the programming can be quantified.

A discussion regarding the collection and use of Pro Rata Share funds focused on the manner in which the funds are generated and the current strategy for utilization. It was noted that PRS funds must be used in the same watershed that they are collected. This provides a disadvantage to the older, built-out watersheds in the eastern portion of the County; these watersheds have fewer funds because of less current development, and in some cases, are the areas of highest system concerns. The Committee identified a concern that having a fund (Pro Rata Share) with a $20 million balance may create an issue regarding whether there is a real need for additional funding and whether the County has the ability to spend money. This was identified as a potential weakness for a case to implement expanded program components and the proposed utility fee.

Mr. Shirey clarified that some PRS funds were allocated under old master planned projects (late 1970s studies) which are now longer appropriate to guide the use of the funds. He anticipated that the Cub Run and Difficult Run Watershed Plans will utilize PRS dollars when they are completed in 2005. He noted that PRS funds can only be used for specific projects, such as regional ponds, stream stabilization, or flood mitigation projects. They are exactions from the development community to address impacts on the stormwater system, to mitigate those impacts and therefore, can be used when projects are defined that will meet the test, such as regional pond projects, which are often opposed by residents. Mr. Rose noted that the County currently spends approximately $2-3 million each year from PRS funds. It was emphasized that it is difficult to spend the money without an increase in staff to administer the projects. The committee recommended that the County include PRS information in the public education and outreach program. Mr. Moseley observed that although the County has approximately $20 million in PRS, this is a small fraction of the estimated $340 - $800 million identified under the CIP program.

The committee asked how PRS funds are invested. PRS funds are held in an escrow account, and can only be held for 12 years; afterwards, they must be paid back to the developer. Ms. Treadway added that PRS funds cannot be mixed with the County's General Funds. Mr. Jenkins clarified that approximately $9 million of the current fund balance is allocated for regional ponds. Mr. Shirey added that approximately $4 million is being used for the development of watershed plans to update all 30.

The Committee indicated that it is important for the County to show immediate tangible results to the public if the utility fee is implemented. Mr. Moseley stated that the intent is to implement highly-visible projects, targeted at "low hanging fruit", to achieve the highest benefit for the lowest cost. The SAC will aid in the public education campaign, and will be assisted by a larger County-wide program.

Mr. Moseley asked if any modifications to the Program Initiatives to address Priorities were needed. The Committee agreed that the first program initiative should be amended to read, "Secure a dedicated and *equitable* funding source for stormwater." They also suggested that one of the program initiatives be amended to read, "Establish baseline standards *to ensure equitable* program application and administration."

Ms. Treadway noted that the County does not have the ability to ensure that like properties are treated in a similar manner due to lack of funding and the reactive nature of the services provided. She stated that though it is possible for the County to take over maintenance for all private facilities, this is a challenging goal, and current conditions must be evaluated first. The Committee agreed that the principle of similar services to like-situated properties should be a long-term goal, and agreed that consistent maintenance standards should be a program priority.

The discussion then shifted to the use of bond financing of capital improvement projects. The group noted that a 1990 stormwater bond was defeated. The Committee acknowledged that bonds for stormwater do not resonate with voters the same way that bonds for schools, parks, and other County services do.

The Committee agreed that a capital infrastructure replacement program should be a program priority. They advocated that infrastructure should be replaced at the end of its useful design life, and upgraded to the most current design standards. Mr. St. Clair affirmed that the County does not have an infrastructure replacement schedule, and only replaces pipes on an emergency basis. The Maintenance staff are currently developing a GIS database that will map the entire system and evaluate the condition and age of pipes. Mr. Jenkins noted that GASB34 requires municipalities to value assets and depreciate them every year; there are no enforcement actions. The group identified that HOAs are required to develop an escrow for facility improvements and the County should follow a similar strategy in management of public facilities. They agreed that budgeting for infrastructure replacement should be a program priority.

The Committee asked if Fairfax County has a comprehensive pollution prevention program. They noted that construction sites are often scrutinized by inspectors, but commercial sites that contribute to stormwater runoff are typically afterthoughts. Mr. Moseley stated that under the County's Municipal Separate Storm Sewer System (MS4) permit, they are required to operate an Illicit Discharge Detection and Elimination (IDDE) program. This includes periodic inspection of outfalls. Mr. Rose stated that the permit requires 100 outfalls to be inspected each year on a rotating basis. The County must also respond to complaints and suspicious activity. Mr. St. Clair estimated that there are between 5,000 and 6,000 outfalls in the County. Ms. Kearns noted that the County does not perform storm drain stenciling; this is typically a Scouting project performed by citizens.

Funding Options – User Fee and General Revenues

Ms. Treadway reviewed the July 1, 2004 *Funding Methods and Revenue Generating Capacity* paper to provide an understanding of the differences between General Funds and a stormwater utility fee. The committee acknowledged that the utility is a separated

and dedicated fund, meaning that it does not compete with other County services for funding in the General Fund. The utility can also be used to issue revenue bonds, or to pay off bonds sooner. Ms. Treadway noted that General Fund allocations can fluctuate yearly, based upon current priorities.

The Committee inquired as to the organizational structure of a utility. Ms. Treadway stated that the Board of Supervisors (BOS) is not required to establish a separate governing board to oversee the utility. However, an advisory board can be established if desired. Ms. Treadway stated that a utility fee typically is charged based upon impervious surface on a property, rather than by the real estate value of that property. The committee discussed whether or not the utility and the provision of credits would encourage green building, the incorporation of LID and reduction of impervious surfaces, and a greater understanding of the impacts of development on the environment. It was noted that HOAs should receive credits when they maintain their stormwater facilities as required; the Community Associations Institute (CAI) might be able to assist with the implementation of the utility. Ms. Treadway also stated that the BOS can by resolution dedicate part of the tax revenue for stormwater service. Committee members noted, however, this can be rescinded as is only the commitment of the sitting Board that adopts it . They may also abolish the utility if they choose. The utility fee can enable bonded improvements without the vote of the public, enhancing the ability of the County to increase the rate of reinvestment in construction services. Ms. Treadway noted that the General Fund can also pay for bonds, using General Obligation bonds, that must be voted by the public, and must compete with other bond initiatives of the County.

The group agreed that utility funds should be raised uniformly across the County. This will cross subsidize different areas and provide equity. Ms. Treadway noted that the utility does not have to be solely user funded. It can incorporate grants and taxes. It can also evolve into a more specialized system that includes surcharges for specific areas in the watershed.

The Committee identified the following principles that should be followed in making the recommendation to the County Board on how to fund the needed improvements in the stormwater program:

- Fund the program using a methodology that links the demand for services to the amount paid by any particular property owner.
- Provide a mechanism that recognizes positive behaviors by the land owner to reduce impacts on flow and pollutant loading.
- Dedicate the funding to the objectives of the stormwater program where the monies cannot be redirected to other competing priorities.
- Utilize a funding strategy that encourages greener development.
- Make the funding mechanism an equitable strategy, bringing all properties into the funding base, not just those paying real estate and other general fund revenues.
- Apply the funding strategy uniformly across the County.
- Utilize bond debt to support the capital improvement program.

Next Steps

Ms. Treadway reported that AMEC is continuing to build the cost of service model with consultation from DPWES staff. At the January 11, 2005 meeting, SAC members will be presented the recommended program, cost of service and projected outcomes. The Committee will be asked if the recommendations meet their expectations and represent the discussion and priorities identified over the past months. At the February 2005 meeting, SAC members will craft a summary statement of recommendations and long term goals, to be presented to the BOS on March 14, 2005. Ms. Treadway noted that consensus amongst SAC members is not mandated, and that the final paper will explore different options and differences. AMEC typically follows a process of "informed consent" as defined in Meeting #1 with the Committee.

The meeting adjourned at 9:05 PM.

Next Meeting

The next meeting of the Fairfax County Stormwater Advisory Committee will be held on January 11, 2005 at 7 P.M. in the Fairfax County Government Center.

Stormwater Needs Assessment Project

Fairfax County Stormwater Advisory Committee
Stormwater Needs Assessment Project
Meeting #5
January 11, 2005, 7 – 9 p.m.
Fairfax County Government Center, Room 4-5

Meeting Minutes

In Attendance:

Stormwater Advisory Committee:

Larry Butler	Jessica Fleming	Jeanette Stewart
Robert Jordan	Christopher Champagne	Sally Ormsby
Greg Prelewicz	Michael Rolband	Mark Trostle
Harry Glasgow	Mary Beth Coya	Russell Wanek
Robert McLaren		

Consultants:	County Staff:	
Elizabeth Treadway	Jimmie Jenkins	Paul Shirey
Doug Moseley	Carl Bouchard	Scott St. Clair
Curt Ostrodka	Fred Rose	Krystal Kearns
	Marlae Schnare	Vishnu Seri
	Shahid Syed	Tanya Amrhein
	Debra Bianchi	Michelle Brickner

Meeting Agenda

1. Welcome and Introductions
2. Review December 14, 2004 Meeting Minutes
3. Funding Strategies
4. Utility Policies – Credits
5. Program Recommendations – Cost of Service
6. Next Steps

Welcome and Introductions

Carl Bouchard, Director of the Stormwater Planning Division, opened the meeting with a welcome message for the committee members and reiterated the County's thanks for their service.

Review December 14, 2004 Meeting Minutes

Mr. Moseley requested any clarification or amendments to the meeting minutes from December. The committee did note some questions regarding the principles that should be followed on how to fund needed stormwater program improvements. Ms. Treadway

noted that these would be revisited in tonight's meeting. No changes were made to the minutes. Ms. Treadway reviewed the meeting's agenda.

Funding Strategies

Ms. Treadway began with a review of the seven principles the Committee identified in the December meeting that should be used by the Team in making evaluating funding strategies and in making recommendations to the Board of Supervisors on the needed stormwater program improvements. The principles noted included:

- Fund the program using a methodology that links the demand for services to the amount paid by any particular property owner.
- Provide a mechanism that recognizes positive behaviors by the land owner to reduce impacts on flow and pollutant loading.
- Dedicate the funding to the objectives of the stormwater program where the monies cannot be redirected to other competing priorities.
- Utilize a funding strategy that encourages greener development.
- Make the funding mechanism an equitable strategy, bringing all properties into the funding base, not just those paying real estate and other general fund revenues.
- Apply the funding strategy uniformly across the County.
- Utilize bond debt to support the capital improvement program.

The committee reinforced the first principle noting that the amount paid should correlate to the demand that the property places on the County for service. Bullet six, dealing with application of the funding strategy uniformly across the County, focused discussion among the committee members on the variations in watershed conditions visible in Fairfax County and the potential need to address those watershed variations. The idea of a watershed-based fee system, where a watershed's fee could be implemented as the watershed plan is completed and the capital investments the plan recommends are known was discussed. Committee members and County staff noted that the use of a watershed-based fee system, in a community with 30 watersheds, may be politically challenging as well as administratively burdensome. The committee noted the value of keeping the fee system relatively simple. The committee also noted the need to express these concepts to the public as this initiative moves forward. It was noted that just as other public utilities allocate capital investments to all rate payers, the stormwater fee structure should follow the same policy. For example, water and sewer utilities do not charge on the basis of the amount of infrastructure investment required to deliver the service, regardless of how far a property may be located from the treatment plants. A property located next to the treatment plant (for drinking water or sewer) pays the same fee rate even though they only use a very small portion of the collection or distribution system.

Ms. Treadway then opened the floor for additional principles and concepts that the committee felt should help shape its recommendation to the Board of Supervisors. The committee noted the need to express the idea that the County must ensure appropriate staffing levels in order to facilitate program improvements. Ms. Treadway noted that year-to-year budget strategies will also drive the recommended staffing levels, and that outsourcing services is a valid strategy in any given year, depending on the nature of the program element.

Ms. Treadway also responded to committee inquiries regarding rate methodologies and potential differences in the residential rate. She discussed the use of detached, single family housing stock as the basis for the creation of the stormwater billing unit. The billing unit is then used to determine what individual properties will pay. She also noted the potential for different residential rates based on a tiered structure that could account for multiple residential categories. Residential tiering adds equity to the determined residential rate, but also requires much more initial data evaluation.

The Committee reviewed the two primary funding methods for stormwater service, the County General Fund and a potential stormwater utility fee, as applied to the principles for stormwater funding noted above. Both the General Fund and a utility enterprise fund can be used as a dedicated funding alternative. By law, enterprise funds must be used only for the services the enterprise fund has been established to provide. The Board of Supervisors can dedicate general fund resources for stormwater management as well. However, the Board can also reappropriate previously dedicated funds for other priorities at any time. Money can be borrowed from an enterprise fund, but it must be repaid. Ms. Treadway and County staff also discussed bonding capacity and the difference between revenue bonding and general obligation bonding.

County general obligation bonds are issued with the full faith and credit of the County behind them, typically getting favorable interest rates, but only after a vote of the public to issue the bonds. The County has a limit in the amount of general obligation bond debt it can incur at any given time. As such, when the County is preparing to request public support for a general obligation bond, competition occurs for getting a portion of the bond. Revenue bonds are issued with the backing of a specific revenue stream, such as a stormwater utility fee. While market conditions may require revenue bonds be issued with a higher interest rate, revenue bonds do not require a vote of the public prior to issuance. The Fairfax County Department of Public Works Wastewater Management program has utilized revenue bonds for projects in the past.

The Committee discussed other aspects of stormwater utilities. Ms. Treadway noted that a stormwater utility should be run just as any business would be, with a full accounting of all revenues and expenses. Utilities can retain fund balances for specific purposes, can meet GASB34 requirements, which include asset management and inventory, and must “pay their own way” with the disbursement of an indirect cost allocation back to the County general fund to cover use of other County services (such as human resources, County administration, County attorney services, etc.).

The committee noted that “green development” does not have a specific definition, and that there is no real distinction between utility funds and general funds in their respective abilities to account for more environmentally friendly impacts.

The committee considered the equity of the general fund and a stormwater utility in funding a stormwater management program. The discussion of equity led to a discussion of legally required exemptions for a stormwater utility in Virginia. State enabling legislation excludes several entities from paying the utility fee. First, Fairfax County, as the operator of the utility, is exempt from paying the fee. Ms. Treadway noted that this policy addresses the issue of equity to the tax payers because the payment would be drawn from the General Fund. Other government agencies that own and maintain stormwater management facilities are also exempt from the utility fee,

including state and federal facilities. Cemeteries are also exempt; however, funeral homes and churches must pay the fee. The enabling legislation does not allow for local interpretation of what "stormwater management facilities" are, and as such, other governmental entities that have some stormwater management facility that they maintain, regardless of whether it meets local design standards, must be exempted.

VDOT highways are exempted from the stormwater utility fee, but VDOT buildings are charged if they do not have on-site stormwater management. Ms. Treadway noted that exclusion of public roadways is common across the country. The County Attorney is currently researching the state code to determine if County-owned facilities, such as fire and police stations, and regional transportation services, such as airports and Metro stations, are exempt.

The Committee discussed whether or not the lack of a fee would reduce the incentive for County agencies to reduce imperviousness at future facilities. They noted that the Board of Supervisors could issue a directive for Low Impact Development practices to be utilized at future County-owned facilities.

In discussing uniformity of application across the County, it was noted that both the general fund and a utility are applied uniformly across the County but that only taxed properties are contributing in a general fund scenario. Both funding streams are also capable of supporting bond debt, with the caveats of each noted as discussed above.

Principle or Goal for Funding Option	**General Fund**	**User Fees**
1. Distribute cost of services on the basis of demand for those services.	No	Yes
2. Recognize positive behaviors by land owners when they reduce impacts of discharges on peak flow and pollutant loading.	No	Yes
3. Dedicate funding to the objectives of the stormwater program so that funds cannot be redirected to other competing priorities.	Limited	Yes
4. Encourage greener practices through the funding strategy.	Yes	Yes
5. Make the funding mechanism equitable across all property owners.	Limited to taxable properties.	Yes, within limits based on enabling legislation.
6. Apply the funding strategy uniformly across the County.	Yes	Yes
7. Utilize bond debt to support the capital improvement program.	Yes, General Obligation Bonds with vote of the public.	Yes, Revenue Bonds without a vote of the public and dedicated.

Utility Policies – Credits

The Committee discussed the use of credits in utility policy. Ms. Treadway noted that generally credit policy is established to recognize the value of a private investment to the overall County effort in managing stormwater. Credits are not automatically granted, nor are they granted in perpetuity. They must be applied for and the owner must provide

documentation that the service or function is being provided and/or maintained. Credits can be taken away if a facility is not properly maintained.

Ms. Treadway asked the Committee to consider potential activities that would warrant a credit in Fairfax County. She noted that structural facilities with water quality and quantity controls, that reduced peak flows or that exceed current standards are typically awarded credits. She noted that credit policies are locally-driven, and there is no state legislature that specifies credit type.

Residential Property Participation: The group discussed whether or not residential properties should be eligible for credits. For example, in Reston and Lake Barcroft, all of the homeowners currently pay fees to maintain their stormwater system. Ms. Treadway stated that most credits consider the County-wide value of the stormwater facility, and do not differentiate between residential and non-residential properties. Therefore, residential properties can be eligible if they provide a qualifying service.

Credit Limits: It was noted that ratepayers seldom receive 100% credit; different percentages of the fee are dedicated to different countywide issues, such as stream restoration and resource inventory. All properties should pay a base amount to account for these expenditures.

Public Education: The Committee discussed providing credits for public education efforts by private entities. It was agreed that public education is worthy of credits; however the focus should be on activities that have tangible (*concrete!*) results, such as quality and quantity benefits.

Open Space: The Committee discussed if undisturbed open space should be given a credit. If "imperviousness" is the basis for the fee, then open space is automatically given credit, since it is not part of the rate base and would not generate a fee. However, it was discussed whether the dedication of a conservation easement to ensure that the property would never be developed could be considered. Ms. Treadway indicated that it would entirely depend on whether the owner had a property, perhaps adjacent to the area dedicated, which was generating a fee so that the credit applied to another property. Credit policies are not set up to give money to non-rate payers.

Other Concepts: The Committee agreed that facilities that provide peak flow reductions, runoff velocity reductions, on-site detention, and that mimic pre-development hydrologic conditions should be credited.

The committee asked that more background material on credits be provided prior to the next meeting.

Program Recommendations – Cost of Service

Ms. Treadway referred to a draft six-year implementation plan to the Committee. She explained that the creation of the GIS imperviousness data will cost approximately $1.7 million. The County spends approximately $12 million per year on stormwater

management. $9.5 million is allocated from the General Fund, with the remaining funds provided by Pro Rata Share and permit fees. The some of the program recommendations captured in the six-year implementation plan included:

- Development of a comprehensive inventory on the approximately 1,400 miles of pipe the County maintains;
- Increase the pace of watershed management plan development, with all plans completed by 2008, rather than 2010;
- Create a Countywide drainage easement inventory, which can prevent project delays.
- Initiation of a reinvestment program for the existing County-operated infrastructure.

Based on the need to develop the supporting data, Ms. Treadway shared with the committee that should the County choose to proceed with the development of a stormwater utility, the utility would not be billing until FY 2007 (June 2006). While the stormwater utility will fully fund itself once implemented, development of the utility will require resources from the General Fund. The utility could then reimburse the general fund after implementation.

The ongoing cost of operating the utility is approximately 3% per year for the cost of billing and administrative staff. The General Administration costs provided to the Committee include public education and mapping/GIS support for all areas of the program (which is why they are captured under the heading of General Administration). The first year of the implementation plan includes a public education and outreach campaign. It also includes a data evaluation phase to determine baseline conditions, including GIS imperviousness data creation. Ms. Treadway reiterated that the utility will be run like a business with standard accounting protocols. Six people can administer the utility. She noted that this is not an aggressive program, but is instead builds from year to year at a moderate pace and will meet the County's needs over time.

Overall, the Committee noted the draft cost of service model seemed reasonable considering the estimated $350 - $800 million capital improvement project backlog.

Mr. Jenkins stated that Anthony Griffin, the County Executive, will release his budget for FY 2005 in February. He stated that the project team and senior staff members presented a report about the stormwater utility fee to the County Budget Director and executive staff the previous week. Ultimately, the decision on whether or not to implement the utility will be made by the Board of Supervisors. Mr. Griffin is considering the dedication of one to two cents from the County real estate tax to fund the stormwater program in lieu of developing a utility fee. Mr. Jenkins reported that Mr. Griffin would be happy to speak to the Committee at their next meeting.

Committee members were encouraged to assist the County in getting the word out to their respective groups by inviting the County to a meeting to share the stormwater program plan. In addition, the Committee members were encouraged to participate in making presentations to their constituent groups along with a Fairfax County staff member. This would be a good public outreach and education opportunity. Mr. Bouchard noted that many civic groups are asking for presentations, and suggested

pairing Committee members and County Staff. He noted that the project team and senior staff will give the final utility report to the Board of Supervisors in late March.

The meeting adjourned at 9:15.

Next Meeting

The next meeting of the Fairfax County Stormwater Advisory Committee will be held on February 8, 2005 at 7 P.M. in the Fairfax County Government Center, conference rooms 4 and 5.

Stormwater Needs Assessment Project

Fairfax County Stormwater Advisory Committee
Stormwater Needs Assessment Project
Meeting #6
February, 2005, 7 – 9 p.m.
Fairfax County Government Center, Room 4

Meeting Minutes

In Attendance:

Stormwater Advisory Committee:

Larry Butler	Jessica Fleming	Jeanette Stewart
Lewis Rauch	Robert McLaren	Sally Ormsby
Greg Prelewicz	Michael Rolband	Russell Wanek
Kimberly Davis	Harry Glasgow	

Consultants:	County Staff:	
Elizabeth Treadway	Jimmie Jenkins	Paul Shirey
Doug Moseley	Carl Bouchard	Scott St. Clair
Curt Ostrodka	Fred Rose	Krystal Kearns
	Marlae Schnare	Vishnu Seri
	Meaghan Kiefer	Michelle Brickner

Meeting Agenda

1. Welcome and Introductions
2. Review January 11, 2005 Meeting Minutes
3. Committee Discussion with County Executive Anthony Griffin
4. Credits – Recommendations from the Committee
5. Finalization of Program Structure
6. DRAFT Committee Recommendations to the Board
7. Wrap-Up and Adjourn

Welcome and Introductions

Carl Bouchard, Director of the Stormwater Planning Division, opened the meeting with a welcome message for the committee members and reiterated the County's thanks for their service. Each Committee and staff member introduced themselves.

Review January 11, 2005 Meeting Minutes

Mr. Moseley invited committee edits for the minutes from the previous committee meeting. He noted that the attendance roster will be updated to include all Committee members present in January. The Committee noted that the reference to the "Fairfax County Sewer Authority" should be changed to "DPWES Wastewater Management." They recommended that the #4 Principle for Funding should be amended to read, "Encourage greener *practices* through the funding strategy." Finally, it was noted that Ms. Treadway had referred to a draft six-year Cost of Service implementation plan, and did not distribute it to the Committee at the previous meeting.

Committee Discussion with County Executive Anthony Griffin

Mr. Jenkins introduced Anthony Griffin, Fairfax County Executive. Mr. Griffin announced that he will release his Fiscal Year 2006 budget to the Board of Supervisors on February 28, 2005. He noted that he believes that financing for stormwater management is a pressing issue that the County should address immediately and he would be recommending an increase in resources for this program. He thanked the Committee for their work over the past months and stated the importance of their efforts in providing guidance to the Board in their decisions regarding the program and funding for stormwater. The Committee discussed their concerns with various funding methodologies with the County Executive and expressed their appreciation to him for offering his insights and opportunity to discuss the issue with him. Their discussion involved the impacts of various funding options, the historical perspective on resources for the stormwater program and concerns regarding the challenges facing Fairfax County in the future.

Credits – Recommendations from the Committee

Ms. Treadway then facilitated a discussion on credit recommendations. She noted that the Committee's job consists of crafting recommendations as to what the County should consider for credit. She stated that the determination of credits would allow her to finalize the rate structure. She noted that the rate should not include different "classes" of payers. If Fairfax County feels the need to develop a program to assist the poor, elderly, or other at risk populations, such a relief program is feasible but must be developed outside the utility structure.

The credit structure must be easy for the public to understand. The Committee agreed and indicated that credits should be used to educate and change behaviors, and that the utility will be politically unfeasible without credits. The Committee agreed that there should be a cap, and that no payer should receive a 100% credit. The Committee agreed that credits should be given for peak flow reduction, ongoing maintenance, and volume reductions. It was pointed out that BMP facilities that are designed to meet a service standard can be given a water quality credit, though it is often very difficult and costly to measure water quality at the outfall. The Committee agreed that stream restoration projects should be given a credit. They also stated that public education should be given a credit because it helps the County meet the Education and Outreach Minimum Control Measures in its VPDES permit.

The Committee then reviewed the credit discussion paper and offered the following input regarding the recommendations offered by the consultant.

Recommendation: No special credit or exemption should be given on the basis of payer class. Should the County desire to address social issues, it should be done outside of the fee-structure and evaluated on other criteria or merits.

The Committee supports this recommendation.

Recommendation: Credits should be granted for all properties based on the technical merit of the facilities or services provided, regardless of ownership.

The Committee supports this recommendation.

Recommendation: Unless the County includes all properties in the rate base, credits are not applicable to agricultural or undeveloped property since they are not charged a user fee.

The Committee supports this recommendation.

Recommendation: It is recommended that the County allow homeowner associations be eligible for stormwater credits when the system component privately owned and managed serves as a regional stormwater management facility for the development. Implementation of the credit should be handled in a manner that is flexible and meets the needs of the property owners. A credit should be evaluated and created to support the LID initiatives of the County. The County should keep the credit program simple in concept.

The Committee asked for the term "regional facility" to be clarified and supports the recommendation.

Recommendation: It is recommended that state and Federal facilities be treated like any other property and charged a fee if the legal test is met as established under the State enabling authority. In all likelihood, a credit would not apply; however, if eligible for a credit, it should be offered as appropriate.

The Committee supports this recommendation.

Recommendation: The County Attorney will provide clarification of the ownership of properties for the County Schools and Park Authority. The County will need to review the government-owned parcels within the County to determine (1) if there is a stormwater system on site and (2) if the system is maintained. If these two conditions are not met, then the property is eligible for payment of the user fee and for credits.

AMEC will coordinate with the County Attorney to clarify this recommendation. The Committee understands the issue of exemptions identified in the enabling legislation.

Recommendation: It is recommended the utility not provide credits or exemptions for properties based on location.

The Committee supports this recommendation.

Recommendation: It is recommended that:

- *the utility grant a credit for the pollution control portion of the fee for all properties which maintain a current NPDES industrial stormwater permit and are in compliance;*
- *the utility grant a credit for the pollution control portion of the fee for all properties within the watershed or resource protection area and which have, either through structural controls or land use requirements, taken steps to reduce pollution from their sites in accordance with the watershed protection measures of the County;*
- *the utility grant a credit to approved detention and retention facilities which are constructed in such a way as to control flow from off-site and reduce its impacts (for quantity and quality controls); and*
- *the County, in establishing the credit policy, consider other BMPs that are non-structural such as development and implementation of a Stormwater Master Plan on a private development or subdivision (e.g. as in Reston). These BMPs should be established with standards set by the County to ensure consistency in the non-structural programs.*

The Committee requested that "*or resource protection area"* **be deleted from the second bullet. They recommend that the third bullet should be clarified and moved to the statement on credits based on impacts.**

Recommendation: It is recommended that impact based credits be provided for reduction in peak flow and pollution reduction. The value of the credit to the owner should be established as it correlates to the overall objectives of the stormwater program, as measured by the cost of services.

The Committee suggests that "volume" be added to the list of impact based credits.

Recommendation: Credit for maintenance of conveyance systems should be evaluated by the County to determine how to value this portion of the drainage system and the condition of the conveyance system held in private hands. This is a more difficult credit program element to create and may be useful as the County completes its system assessment program.

The Committee suggests that language related to conservation easements in forested areas be added to this recommendation.

The recommendations of the Committee will be incorporated in the discussion paper on Credits.

The Committee will hold its last meeting to finalize recommendations on level of service and to review the work of the past meetings to prepare a statement to the Board Environmental Committee meeting for their March 28th meeting.

The meeting adjourned at 9:20.

Next Meeting

The next meeting of the Fairfax County Stormwater Advisory Committee will be held on March 8, 2005 at 7 P.M. in the County's Herrity Building. The next meeting will offer the opportunity for the Committee to draft its recommendations to the Board of Supervisors.

Stormwater Needs Assessment Project

Fairfax County Stormwater Advisory Committee
Stormwater Needs Assessment Project
Meeting #7
March 8, 2005, 7 – 9 p.m.
Fairfax County Herrity Building
Draft Meeting Minutes

In Attendance:

Stormwater Advisory Committee:

Larry Butler	Jessica Fleming	Jeanette Stewart
Lewis Rauch	Robert McLaren	Sally Ormsby
Greg Prelewicz	Michael Rolband	Russell Wanek
Kimberly Davis	Harry Glasgow	Mary Beth Coya
Christopher Champagne	Mark Trostle	

Consultants:	County Staff:	
Elizabeth Treadway	Jimmie Jenkins	Paul Shirey
Doug Moseley	Carl Bouchard	Scott St. Clair
Curt Ostrodka	Fred Rose	Krystal Kearns
	Kate Bennett	Michelle Brickner
	Brian Clifford	Steven Crawford

Meeting Agenda

1. Welcome and Introductions
2. Review February 8, 2005 Meeting Minutes
3. Final Discussion on Level of Service
4. Recommendations of the Committee
5. Wrap-Up and Adjourn

Welcome and Introductions

Carl Bouchard, Director of the Stormwater Planning Division, opened the meeting with a welcome message for the committee members and reiterated the County's thanks for their service and time. He stated that the goal of this meeting is to bring closure to the stormwater needs assessment project and to craft the recommendations of the Committee for the Board of Supervisors regarding the recommended level of program and the funding strategy to address the long-term efforts of the County.

Review February 8, 2005 Meeting Minutes

Several committee-suggested amendments to the minutes of February 8, 2005 were offered, based on the early distribution of meeting minutes. Text that has been changed or edited has been underlined, as shown below:

Meeting Minutes – February 8, 2005 - Page 3:

Recommendation: It is recommended that the County allow homeowner associations be eligible for stormwater credits when the system component privately owned and managed serves as a regional facility for the development. Implementation of the credit should be handled in a manner that is flexible and meets the needs of the property owners. A credit should be evaluated and created to support the LID initiatives of the County. The County should keep the credit program simple in concept.

The Committee had requested this change in the Credit Discussion Paper and it was not picked up in the meeting minutes.

Meeting Minutes – February 8, 2005: Page 3:

Recommendation: It is recommended that state and Federal facilities be treated like any other property and charged a fee if the legal test is met as established under the State enabling authority. In all likelihood, a credit would not apply; however, if eligible for a credit, it should be offered as appropriate.

The word "State" was added to clarify the source of the enabling authority for the County to establish a service fee for stormwater programs.

Meeting Minutes – February 8, 2005: Page 3:

Recommendation: It is recommended the utility not provide credit or exemptions for properties based on location.

The reference in the recommendation to watersheds or floodplains was not necessary and should be dropped, clarifying that no credit be awarded on the basis of property location in the County.

Meeting Minutes – February 8, 2005: Page 4: top of page

- *the utility grant a credit for the pollution control portion of the fee for all properties within the watershed or resource protection area and which have, either through structural controls or land use requirements, taken steps to reduce pollution from their sites in accordance with the watershed protection measures of the County;*

This language was recommended for clarification of understanding of the statement.

It was also noted that on the recommendation regarding "Class of Property", for those properties that are undeveloped or agricultural in nature, the statement that includes "…this class of property…" will be changed to agricultural or undeveloped property on the second bulleted recommendation on page 3.

The Committee also discussed whether the minutes from February 8, 2005 should be more explicit regarding the details provided by the County Executive on his budget plan which was presented to the Board on February 28. Ms. Treadway explained that his conversation with the Committee was a preview of his budget statement to the Board

and would not be captured as an official record. The published County Executive budget statement for FY 2006 should be referred to for the record of his recommendations on stormwater. The February 8th meeting minutes will be amended to note that a preview was provided by him, prior to an official release.

Final Discussion on Level of Service

The AMEC team reviewed the Performance Objectives for Level of Service from the *Preliminary Rate Analysis* discussion paper with the Committee, summarizing the performance factors developed based on the recommendations of the Committee and County staff regarding the level of program necessary to address the goals and challenges for stormwater management.

The Committee discussed the value of floodplain mapping and delineation in Fairfax County. They noted that the County has more restrictive standards for floodplains than the Federal Emergency Management Agency (FEMA). If the County partners with FEMA and produces new maps, it is important that the updates include analysis on more than the FEMA delineated floodplains. This effort will assist property owners by improving the Community Rating System (CRS) score and thereby decreasing flood insurance rates for residents. The Committee noted that floodplain safety is a Board of Supervisors priority.

The County's current MS4 permit expires at the end of 2006 and will be renegotiated in the fall of 2006. The new MS4 permit may include Chesapeake Bay Agreement and Tributary Strategy pollutant reduction requirements. Mr. Rose, County staff, stated that each MS4 permit is negotiated individually with the locality and Fairfax will be required to address specific issues within its boundaries. Mr. Moseley, AMEC, noted that the final Tributary Strategy report states that as an intermediate term performance measure, MS4 programs, both Phase I and Phase II, will be examined by DCR to determine, what, if any, improvements will be needed to increase the emphasis on meeting specific watershed goals.

Experience in North Carolina was shared, where the State used MS4 permits to limit nutrients such as nitrogen, setting a 12% impervious cover threshold for new and redevelopment in multiple watersheds. If a locality does not meet the impervious cover conditions of the MS4 permit, they must institute more stringent control measures and if not in compliance, may be fined.

Review of Preliminary Rate Analysis: A discussion of the recommended rate based on the Level of Service established with guidance from the Committee led to a review of the impact of changing from a primarily tax-based General Fund to a service fee methodology. The chart presented demonstrated that a property with a high assessed tax value and a low imperviousness footprint pays more for stormwater services when they are funded through the GF than when the service fee is utilized because of the equity of allocation based on runoff contribution. Likewise, a very large horizontal development such as a shopping mall can anticipate that their burden for support of the stormwater program could increase under a service fee strategy. The Committee identified the shift as a clear indication of the equity of the service fee system, with those properties impacting the system more, as represented by the presence of imperviousness, paying a proportionately higher financial support to the program, than

those properties with equally high property value but a more compact development footprint.

The Committee noted that the tax-based General Fund does not provide any incentives for greener, low impact development techniques.

Pro Rata Share Program: The Committee discussed the use of Pro Rata Share (PRS) fees charged to developers. Developers must address stormwater and drainage impacts of development on-site, designing systems to perform at pre-development conditions and must pay for off-site improvements through imposed PRS fees, based on an implied impact of discharges as measured by the amount of imperviousness within the development. Several committee members noted that it is inequitable to charge PRS to developers while requiring that the discharge impacts be minimized to pre-development conditions. In addition, they noted that the user fee is designed to generate sufficient revenue to build the facilities that were identified to set up the revenue projection under Pro Rata program. The concern of various members of the Committee in framing the discussion was that developers pay twice for the same impact – once as they develop the site and once into the Pro Rata Share program. This discussion led to a general acknowledgement by the Committee, as a whole, that there is serious inequity in the Pro Rata program.

In conclusion of this discussion, it was noted that the County is nearly built out and PRS contributions to that fund will decrease and be minimal in comparison to the overall budget for stormwater. AMEC staff noted that the utility fee would have to account for a loss of the Pro Rata revenue once the on-hand fund balance was spent. Eliminating Pro Rata today will not change the projected rate for the five year period in the Rate Analysis.

Implementation of the User Fee System and General Administrative Costs: AMEC staff indicated that it will cost approximately $2.7 million to implement. This figure includes the development of the GIS imperviousness data and the Master Account File, which is the major portion of the effort ($1.9 million of the total). The stormwater fund would compensate the Department of Tax Administration $100,000 per year, as recommended by AMEC, for the additional effort and labor they would need to undertake. The on-going operation of the user-fee system will cost approximately $700,000 per year, with new IT and Billing positions being added to keep the MAF up to date. AMEC recommended the establishment of an accountant and management analyst position to support the enterprise audit and public accountability process. The utility setup has been proposed for FY 2006, and the cost of service analysis captured the impact under the Engineering and Design function. The overall approach of implementation as recommended by AMEC is to set up the enterprise fund immediately, in the FY 2006 budget process, and have the County Board of Supervisors adopt the rate schedule in the FY 2007 budget cycle, with the first billing to occur in June 2006 for FY 2007 revenue. This would also allow the Board to reduce the tax rate, if it chooses to do so, by approximately 2 cents, based on current earning capacity of a penny on the rate.

Mr. Jenkins noted that a penny off the County real estate tax rate today will provide approximately $17 to $20 million. However, in the future, two pennies may be required to fully fund stormwater needs. He stated that the County Executive's proposal will provide approximately $32 million per year (current funding plus a one-cent dedication), and that DPWES will be challenged to allocate and utilize that much money given

current and anticipated staffing levels in FY 2006. He reiterated that regardless of the County Executive's Budget for FY 2006, the Committee must still make recommendations to the Board and present a need for increased stormwater spending and for recommendations on the funding strategy.

The Committee discussed using the tax revenue of FY-2006 to cover the setup costs of the service fee, having the service fee system ready for implementation in FY-2007.

The Committee raised the issue of coordination of this effort (Stormwater Needs Assessment) and the public input from the Watershed Planning studies. County staff noted that they have given presentations to various watershed planning citizen advisory committees to increase the level of knowledge about the proposed stormwater fee. The Committee indicated the importance of educating the citizen committees on the funding issues.

Recommendations of the Committee

The Committee had a lively discussion on their statement to the Board to be delivered on March 28th. They came to a general voice of consent on its statements to the Board of Supervisors. Unanimity in the committee's statements was not required, and the committee had an opportunity to craft its message as appropriate. Various Committee members reported that the individual organizations they represent for this project have taken a position on the use of fees to support the overall stormwater program and each identified the position to the Committee:

- The Fairfax County Chamber of Commerce supports stormwater funding from the General Fund only, and does not support a utility fee, indicating that they believe the stormwater program is a public service and should be paid for from the general revenues of the County.
- The Northern Virginia Building Industry Association supports the utility approach with the understanding that the County will rescind the Pro Rate Share program.
- The National Association of Industrial and Office Properties (NAIOP) supports the utility fee if Pro Rata Share program is eliminated and the County provides the necessary staffing to ensure that goals can be achieved.
- The Federation of Citizens Associations member polled his constituents in the Western Fairfax County Citizen Associations and with 19 out of 58 responding to date, nine respondents supporting the utility fee, and ten respondents favoring the General Fund.
- The Fairfax Water staff, as a technical resource to the Committee, has no opinion toward the source of the revenue, but supports maintaining a high level of service for stormwater programs.
- The Reston Homeowners Association supports the utility fee, provided that a credit policy is in place to reward communities who have invested in and contribute to stormwater management solution in their development or on their properties.
- The Environmental Quality Advisory Council has not voted to support the utility yet but would be taking a position at the March 9, 2005 meeting.

The Committee established the following recommendations for presentation to the Board:

The Committee has unanimous support for a long-term dedicated source of funding for the stormwater program.

The Committee embraces the County Executive's FY 2006 budget with a dedication of one-cent on the tax rate for stormwater in addition to the current level of funding.

The overwhelming majority of the Committee supports the implementation of the utility fee, effective in FY 2007, for the purpose of addressing the level of service outlined in the projected program. The majority believes that the user-fee approach addresses the following:

- **Stability for continuation of projects needed to be addressed in the watershed plans.**
- **Effectiveness over the long term, meeting long-range goals.**
- **Equity in application.**
- **Incentive for effective stormwater mitigation practices through use of a credit system.**
- **Fairness to all landowners.**
- **Recognition of current efforts made by private land-owners in support of overall program objectives.**
- **Elimination of the Pro Rata program to provide fairness in the burden placed on the development community.**
- **Initiation of the user-fee system in FY 2006 using General Fund dedication of one cent on the tax rate to addition of staff and other resources.**
- **Reduction of the tax rate up to 2 cents in FY 2007.**

Wrap up

Ms. Treadway stated that AMEC and County staff will submit a compendium of the Committee's work to the Board of Supervisors. This will include all meeting minutes, discussion papers, and a final statement of policy. An Executive Summary will be produced for both the Board and for the public.

On March 28, 2005, AMEC will present the stormwater needs assessment findings, including the funding analysis report, to the Board of Supervisor's Environmental Committee. Advisory Committee members, Mr. McLaren and Mr. Rolband, will present the recommendations from the Committee. All members are encouraged to be present that day. All member organizations should present individual statements in writing to the Board, as appropriate.

Ms. Treadway thanked the Committee for their time and service, acknowledging their commitment to Fairfax County. She stated her personal appreciation for the participation and lively discussion over the past seven months.

The meeting adjourned at 9:20 pm.

Funding Methods and Revenue Generating Capacity

July 1, 2004

Executive Summary

The purpose of this paper is to examine the funding mechanisms available to Fairfax County to support its stormwater management program. The information is intended for use by the County to help make policy decisions regarding the right mix of funding tools to achieve the County's target level of service. The paper helps to highlight issues of funding equity (linking revenue sources with revenue beneficiaries) and funding adequacy (the ability of a potential source to produce sufficient and stable revenue). The paper also divides revenue into those with the capacity to fund an entire program (primary sources), and those with the capacity to fund specific program elements (secondary sources).

While there are several potential secondary sources of revenue discussed in this paper, there are only two commonly recognized primary sources of revenue for stormwater management that are at the County's disposal. These are the General Fund, supported primarily through the real property tax, and a stormwater utility fee. As a result, after considering how secondary sources can fund specific program elements, the County's major options for stormwater funding include the following:

- Maintain the status quo.
- Shift existing General Funds from other programs to stormwater management.
- Raise real property taxes and dedicate a portion to stormwater management.
- Implement a dedicated stormwater utility fee.

A. Overview of Stormwater Funding Mechanisms

Fairfax County has several funding options available by Virginia statute. However, standards and limitations exist that influence the viability of these different funding mechanisms. Stormwater funding mechanisms commonly used by local governments in the United States include taxes (e.g., on property, retail sales, real property sales, income, and business gross or net profits taxes), exactions, special assessments, and service fees (sometimes also termed user fees or service charges). Each has a different underlying philosophy that guides the structure of the funding mechanism and the use of the revenues.

Funding mechanisms can also be distinguished as *ad valorem* or *non-ad valorem*. Ad valorem simply indicates that something is imposed based on a percent of value. By contrast, non-ad valorem is associated with or conditioned upon the performance of an act, the engaging in an occupation, or the enjoyment of a privilege. The following is a brief overview of the different types of funding mechanisms.

Table 1: Summary of Common Stormwater Funding Mechanisms

Taxes	Most general purpose local governmental functions are primarily funded through taxes that simply generate revenue. For example, an ad-valorem property tax is often imposed upon real (and sometimes personal) property based on its value. The purpose is simply to provide revenue to defray the expenses of general government, as distinguished from the expense of a specific function or service. It is not necessary for a tax to have a demonstrable association with any particular purpose or function.
Exaction	An exaction, or excise tax, is most commonly associated with franchise rights and development-related activities or impacts. Over many years the term has come to mean and include practically any tax that is not an ad-valorem tax. An example is a franchise fee on a cable utility. The franchise fee is imposed based on the privilege of running wires along public rights-of-way, rather than any assessment of the value of the information transmitted. However, like other taxes, the ultimate use of the revenue does not need to be associated with its source.
Special Assessment	The essential characteristic of a special assessment is that it must confer some direct and special benefit to the property being assessed. A special assessment is based on the premise that the property assessed is enhanced in value at least to the amount of the assessment. Like service fees, special assessments are intended for a specific purpose rather than simply as a revenue generating mechanism. Assessments may be based on property value (ad valorem) or other factors (non-ad valorem) such as frontage along a street or sidewalk improvement.
Service Fee/ Stormwater Utility	A stormwater service fee, often referred to as a stormwater utility, is funded primarily through service or user fees or charges that are related to the cost of providing the services and facilities. Funding stormwater programs through dedicated enterprise accounting provides a mechanism for receipt and allocation of multiple revenue sources dedicated to stormwater management. A service fee is imposed on persons or properties for the purpose of recovering the cost of providing service. A stormwater service charge rate methodology is adopted to set the appropriate fees and charges.

The stormwater funding options available to Fairfax County can also be described as "primary" and "secondary." Primary methods have the capacity to support the entire program, while secondary methods are applicable to special needs or situations, but are not capable of funding a full program. The primary funding methods discussed in this paper might be used as the sole sources of funding for a program, but are more typically used in combination with secondary sources.

Table 2: Primary and Secondary Stormwater Funding Mechanisms

Primary Funding Methods	Secondary Funding Methods
General Fund Appropriations Stormwater Service Fees (Stormwater Utility)	Other Service Fees Special Assessments Pro Rata Shares Watershed Improvement Districts Federal and State Funding/Grants/Loans In-Lieu-Of-Construction Fees General Obligation and Revenue Bonding

Local governments across the United States have used all the funding mechanisms examined in this paper to some degree. Legislative and/or charter authority and the mission and priorities in each community have guided the selection of a preferred approach. There is no single funding mechanism that is best in every setting. Some funding sources are better suited to operations and maintenance, while others are used strictly for capital improvements. Adequate, consistent funding of a stormwater program is more important to the long-term success of the effort than the actual source of revenue. The following sections provide a synopsis of each of the primary and secondary funding mechanisms available in Virginia. Where applicable, each synopsis provides a description of how the revenue source has been used in Fairfax County to support the stormwater program.

B. Primary Funding Methods

General Fund Appropriations

The majority of General Fund revenues in most Virginia localities are derived primarily from real property taxes. This is true in Fairfax County, where real property taxes comprise 60.7% of General Fund revenues. Other major sources of General Fund revenues in Fairfax County include personal property taxes (17.1% including reimbursements from Virginia as a result of the Personal Property Tax Relief Act of 1998) and other local taxes (14% including the local sales tax and Business, Professional, and Occupational Licenses). The demands on the stormwater system placed by a specific parcel have little relationship to property values or business sales activity levels. The system requirements are a function of the peak rate and total amount of stormwater runoff that must be carried safely through the community. Typically, the revenue sources that support the General Fund are based on a "taxation" philosophy – the purpose of which is simply to raise revenue. It is not necessary that there be any association or relationship between the source of revenue and the purpose to which it is applied.

Using General Fund appropriations for stormwater management also produces a level of inequity in that some properties that place demands on the system may be exempt from property taxes. For instance, §58.1-3609 *et seq* of the Code of Virginia exempts a range of religious, charitable, patriotic, historical, benevolent, cultural, and public park and playground uses from real and personal property taxes. As a result, they do not participate in funding stormwater management through the General Fund. Similarly, some private properties, e.g. parking lots and storage warehouses that have large expanses of

impervious coverage, do not pay real property taxes commensurate with the demands they impose on the stormwater system. Conversely, some properties that have little impact on stormwater runoff but pay proportionately higher property taxes are paying more for stormwater management through the General Fund than they would through funding methods based on the actual demands they place on the system.

General Fund appropriations for any specific purpose can also be highly uncertain from year to year, as revenue is not dedicated to any specific purpose. Allocations shift with real and perceived priorities. Stormwater management needs are likely to receive a higher priority in a year following severe storms and drainage problems than in a year following a drought. This makes it difficult to engage in long-term planning for the program.

One option often considered by local governments to provide a source of revenue for stormwater functions is to dedicate a portion of the real property tax. A unique example is Prince George's County, Maryland, which taxes real property at a rate of $0.135 per $100 of assessed value for stormwater management. It is important to note that the funding generated by this tax is set aside in an enterprise fund that must be used for stormwater by State law. The funding scheme is unique in that the tax was established by Maryland when the Washington Suburban Sanitation Commission (WSSC) had responsibility for stormwater in the County. This authority was then transferred to Prince George's County. There is no parallel enabling authority established in Virginia.

In Virginia, the City of Fairfax established a separate stormwater management fund in the mid-1990s that is funded through the real property tax. The portion of the real property tax going to the fund is determined each year by the City Council based on the fund balance versus the needs contained in the City's stormwater capital program. The capital program was first developed in 1991, and is periodically re-assessed. During the first few years of program implementation, the dedicated portion of the real property tax ranged from $0.01 to $0.02 per $100 of assessed value. However, there is currently an unspent balance in the fund, and no allocations have been made in the past few years. If additional project needs arise, then additional funds may be allocated. Unlike Prince George's County, the portion of the real property tax going to stormwater in the City of Fairfax is not presented as a separate tax, but is simply a part of the overall budget deliberations. Therefore, stormwater funding is still subject to competition with other budget priorities.

Application in Fairfax County Fairfax County's existing stormwater management program is largely funded through General Fund appropriations. The General Fund could potentially support an increase in spending on stormwater programs either through a tax increase or through reallocation of current resources. Reductions in other services funded from the General Fund to avoid a tax increase may or may not be publicly acceptable. The Fairfax County Board of Supervisors adopted an FY 2005 real property tax rate of $1.13 per $100 of assessed value, which was reduced from the FY 2004 rate of $1.16. At FY 2005 real property values, each penny the tax rate is increased results in approximately $14.5 million in revenue generated.

Stormwater Service Fees (Stormwater Utility)

Service fees are becoming an increasingly popular source of dedicated stormwater funding, with over 500 in existence throughout the United States. In Virginia, stormwater service fees must be based on some measure of a property's contribution to stormwater runoff. Table 3 presents Virginia's stormwater utility enabling legislation.

Table 3: Stormwater Utility Enabling Legislation

The enabling legislation for stormwater utilities in Virginia (Code of Virginia §15.2-2114) specifically states that:

1. A utility can be established, by ordinance, to cover the following costs:
   a. Acquisition of real and personal property to construct, operate and maintain stormwater control facilities;
   b. Cost of administering programs;
   c. Engineering and design, debt retirement, construction costs for new facilities and enlargement or improvement of existing facilities;
   d. Facility maintenance;
   e. Monitoring of stormwater control devices;
   f. Pollution control and abatement, consistent with state and federal regulations;
   g. Planning, design, land acquisition, construction, operation and maintenance activities.
2. Charges shall be based on contributions to stormwater runoff.
3. Charges may be assessed to property owners or to occupants, including condominium unit owners or tenants (if tenant is the one who is being billed for water and sewer).
4. Utility shall waive charges in the following cases:
   a. From federal, state and local government agencies, when the agency owns and provides for maintenance of storm drainage and stormwater control facilities or is a unit of the locality administering the program.
   b. From roads and public street rights-of-way that are owned and maintained by state and local agencies.
5. Utility may waive charges, partially or in full in the following case:
   a. From cemeteries.
   b. From any person who owns and provides for complete private maintenance of storm drainage and stormwater facilities, provided such person has developed so that there is a permanent reduction in post-development stormwater flow and pollutant loading.
6. Locality may issue general obligation bonds or revenue bonds to finance the cost of infrastructure and equipment for a stormwater control program.
7. In case of failure to pay fees, the agency can charge interest on past due amounts and can recover by action of law or suit in equity and shall constitute a lien against the property, ranking on parity with liens for unpaid taxes.

The general standard applied to utility fees is that the rate methodology must be fair and reasonable, and resultant charges must bear a substantial relationship to the cost of providing services. However, the local government has a great deal of flexibility in attaining these objectives in the context of local circumstances. When stormwater utility rates have been subjected to legal challenges, the courts have tended to apply "judicial deference" to the decisions of locally elected officials. Under judicial deference, the courts will not intervene unless a plaintiff can demonstrate that the decision was arrived at arbitrarily and capriciously or that the result of the decision discriminates illegally.

Stormwater service fees typically provide more stable revenue than other funding options, offer the opportunity to design a service fee rate methodology that results in an equitable allocation of the cost of services and facilities, and, in some cases, can provide an opportunity to shift a portion of the community's stormwater management burden away from the General Fund. Service fee rate structures are designed to recover costs based on the demands placed on the stormwater systems and programs.

Based on an analysis by AMEC Earth & Environmental, Inc., the average single-family stormwater utility charge nation-wide is $3.05 per month. Table 4 provides information on existing stormwater utilities in Virginia.

Table 4: Fiscal Year 2003-2004 Data on Stormwater Utilities in Virginia

Locality	NPDES Phase I / Phase II	Single-Family Residential Stormwater Fee	Commercial Stormwater Fee Per Month	Total Annual Revenue Generated
City of Norfolk, VA	Phase I	$5.40/month	$0.124 per 2,000 sq. ft. of impervious area	$7.4 million
City of Virginia Beach, VA	Phase I	$4.29/month	$4.29 per 2,269 sq. ft. of impervious area	$12.7 million
City of Portsmouth, VA	Phase I	$3.50/month	$3.50 per 1,877 sq. ft. of impervious area	$2.6 million
City of Newport News, VA	Phase I	$3.10/month *See note 1.*	$3.10 per 1,777 sq. ft. of impervious area	$5.5 million
City of Hampton, VA	Phase I	$3.50/month	$3.50 per 2,429 sq. ft. of impervious area	$3.7 million
City of Chesapeake, VA	Phase I	$2.55/month	$2.55 per 2,112 sq. ft. of impervious area	$4.2 million
Prince William County, VA	Phase I	$1.73/month *See note 2.*	$0.84 per 1,000 sq. ft. of impervious area	$2.8 million

Note 1: The City of Newport News bills multifamily residences at 0.42 ERUs, or $1.30 per month.
Note 2: Prince William County bills apartments, condominiums, and townhomes at ¾ of the single family rate, or $1.2975/month. Prince William County's single-family residential ERU equals 2,059 sq. ft. of impervious area.

The revenue generation capacity of a stormwater utility is similar to that of the real property tax, except that the utility fee is directly linked to impervious surface cover or another measurable characteristic, rather than assessed value. Determining a legally defensible rate needed to generate revenue sufficient to finance the County's stormwater needs would require the County to engage in a "stormwater utility rate study." During this study, important policy decisions are made that can have significant implications for the selected rate. An important first step in the process is to determine the average impervious land cover in square feet for a single-family residential lot. Although it is common for all single-family lots to be charged a flat fee, the Equivalent Residential Unit (ERU) is applied to all other classifications of land. For example, if the ERU is 2,000 square feet of impervious surface, and the fee is $2, a commercial lot with 10,000 square feet of impervious surface cover would pay $10 (10,000/2,000 = 5 ERUs multiplied by $2).

In addition to technical determinations, the County must address a range of policy questions that ultimately impact the structure of the utility, as well as the stormwater utility rate. Major policies questions are presented in Table 5.

Table 5: Policy Decisions Affecting Utility Rate and Structure

Policy Decisions Affecting Utility Rate and Structure

1. **Program:** Will all, or only part of the current program/service elements identified in the program evaluation be shifted to the enterprise fund?
2. **General Fund:** Will the utility pay for services received from the General Fund such as general overhead? (Indirect Cost Allocation)
3. **Special Fees and Other Revenues:** What additional revenue sources will be used, or created, to support stormwater programs that may result in a more equitable distribution of costs (existing or future increases in fees for erosion and sediment control; fees for inspection of private BMPs; grants, etc.)?
4. **Financial Factors:** What is the fund balance test that must be maintained by the enterprise fund? Is interest earned by the cash flow from the utility credited to the enterprise fund? What is the "bad debt" factor (based on history of collecting fees)? Are fund balances appropriated in the following year?
5. **Reserves:** Will an emergency reserve be established to address catastrophic system failures? What level of operating reserve will be maintained?
6. **Bonds:** Will bonds be used to pay for the capital improvements program?
7. **Rate Allocation:** Will gross lot area be utilized along with imperviousness in the rate methodology?
8. **Exemptions:** Will exemptions be established other than those legally mandated by state statute?
9. **Credit Policy:** What will be considered for "credits" (i.e., stormwater management facilities that treat and/or detain stormwater from a specific site or sites) under the program?
10. **Billing:** What portion of the billing costs will be transferred to the stormwater enterprise fund? What portion of customer service costs will be transferred to the utility?
11. **Rate Policy:** Is it a goal that the rate be held constant for 3 years? Or 5 years? Or will the rate be adjusted annually?
12. **Bill Receipt:** Who will receive the bill, owners or current utility customers (such as renters and leasers)?

All of these policy decisions will need to be considered as part of a rate study should the County decide to pursue the implementation of a stormwater utility.

Application in Fairfax County A stormwater utility fee has not been implemented in Fairfax County. However, the potential implementation of a utility fee has been the subject of several County studies.

C. Secondary Funding Methods

Plan Review, Development Inspection, and Special Inspection Fees

Most jurisdictions offset, at least in part, the cost to review plans and issues permits related to stormwater management by imposing various fees.

Application in Fairfax County In Fairfax County, the Office of Site Development Services is responsible for applying most environmental and stormwater related fees. For example, review of a Water Quality Impact Assessment under the County's Chesapeake Bay Preservation Ordinance is partially offset by a $175 application fee. Similarly, a fee of $800 must be submitted to cover the costs associated with drainage studies. Various plan review fees are contained in Section 104-1-3 of the County Code. By July 2006, Fairfax County will also begin collecting fees for Virginia Pollutant Discharge Elimination System (VPDES) stormwater construction permits. Responsibility for implementing this program will be transferred from the Virginia Department of Environmental Quality to Fairfax County under HB 1177 passed by the General Assembly in 2004. How much this new program will cost the County will depend on the fee amount, which is set through a State regulatory process.

At present, the County estimates that fees recuperate approximately 80% of the cost of providing specific services. Overall, however, these fees do not represent a major source of revenue. Although increased fees are an option, limitations in the amount of development will necessarily limit the amount of money that can be raised in this way.

Special Assessments

The essential characteristic of a special assessment is that it must confer some direct and special benefit to the property, or properties, being assessed. Special assessments for stormwater are most workable in very localized applications. For example, improving a ditch or channel that directly serves a few properties or a relatively small area is an appropriate project for special assessment funding. A special assessment is based on the premise that the work being done enhanced the value of the properties assessed in an amount at least equal to the amount of the assessment. Like service fees, special assessments are intended for a specific purpose rather than simply as a revenue generating mechanism. A common requirement of assessments is that there must be a rational linkage (nexus) between the use of the revenue derived from the assessment and the benefit to the party to whom it is applied. Assessments may be based on property value (ad valorem) or other factors (non-ad valorem) such as frontage along a street or sidewalk improvement.

In Virginia, one tool available for the creation of a special assessment for localized areas of a jurisdiction is the service district. The Code of Virginia (§15.2-2400) spells out that "Any locality may by ordinance, or any two or more localities may by concurrent ordinances, create service districts within the locality or localities… Service districts may be created to provide additional, more complete, or more timely services of government than are desired in the locality or localities as a whole." Service districts can provide a wide variety of services, and are usually used for water and sewer services, garbage removal and disposal services, and private street and road maintenance.

Service districts have not been used to fund holistic stormwater management in Virginia. While "stormwater management" services are not called out specifically, §15.2-2403(1) notes several specific services that are tangentially related to stormwater management, including the ability "to construct, maintain, and operate such facilities and equipment as may be necessary or desirable to provide additional, more complete or more timely governmental services… including but not limited to… street cleaning (and) snow removal." In addition, changes to §15.2-2403(1) enacted in the 2003 session of the General Assembly includes similar authority to "control infestations of *insects that may carry a disease that is dangerous to* humans" (HB1881) which could be tied to concerns over standing water in the storm sewer system and stormwater BMPs. These service districts also have the power to levy and collect "an annual tax upon any property in such service district subject to local taxation to pay, either in whole or in part, the expenses and charges for providing the governmental services authorized…" (§15.2-2403(6)). These funds must be segregated from General Fund dollars and be expended in the district in which they were raised.

Application in Fairfax County In Fairfax County, several service districts and special tax districts have been created for various purposes. These are presented in Table 6. However, none of these districts are for stormwater management, nor has the County ever considered the creation of a service district for stormwater.

Table 6: Service Districts/Special Tax Districts in Fairfax County (FY 2004)

Leaf Collection	$0.01 per $100 of assessed value on residential, commercial, and industrial properties within sanitary districts.
Refuse Collection	$210.00 annually within sanitary districts.
Gypsy Moth Control	$0.001 per $100 of the valuation of real estate within Fairfax County.
Water Service Districts	Clifton Forest Water Service District. On any lot within the district, an annual assessment of $661 for thirty years commencing July 1, 1993. The Colchester Road-Lewis Park Water Service District. On any lot within the district, an annual assessment of $959 commencing January 1, 2003 for thirty years.
Reston Community Center	This special tax district operates with a levy of $0.052 per $100 of assessed value on properties located in the district.
McLean Community Center	This special tax district operates on a levy of $0.028 per $100 assessed value on properties located in the district.
Burgundy Village Community Center	This special tax district operates on a levy of $0.02 per $100 assessed value on properties located in the district.
Route 28 Transportation Tax District	This special tax district operates on a levy of $0.20 per $100 assessed value on commercial and industrial zoned property, or property used for commercial or industrial purposes within the district. This tax levy does not apply to residential property.

Pro-Rata Shares (PRS)

Under the Code of Virginia (§15.2-2243), "A locality may provide in its subdivision ordinance for payment by a subdivider or developer of land of the pro rata share of the cost of providing reasonable and necessary sewerage, water, and drainage facilities, located outside the property limits of the land owned or controlled by the subdivider or developer but necessitated or required, at least in part, by the construction or improvement of the subdivision or development;…" The enabling legislation specifically includes drainage work

for the protection of water quality and the mitigation of increased stormwater flows as permissible uses of these funds. Funding is typically held in a cash escrow account until such time as the stormwater management facility or BMP is constructed. Funds must be utilized for facility or BMP construction within twelve years of the date they were posted. If not, the posted cash escrow reverts to a tax credit on the real estate taxes due on the property at the time of escrow expiration. Pro-rata accounts are typically most effective in communities experiencing significant, sustained growth.

Application in Fairfax County Fairfax County operates under a Pro-Rata Shares (PRS) program approved by the Board of Supervisors in 1991. Typical projects constructed with pro-rata share funds address flood control, stormwater drainage issues, severe streambank erosion, and impaired or reduced stormwater quality. Completion of the County's system of regional ponds is a major purpose of the program. However, County budget documents note that the program is insufficient to cover all the County's stormwater capital improvement needs. This is reflected in a statement in the County's Regional Ponds Report that funding has been available to implement only one-third of the planned 150 regional ponds envisioned for the County.

From 1992 through 2004, the PRS program has generated a total of $41.2 million in revenue for stormwater related projects. Since $7.8 million was rolled over from the former PRS program, revenue over the last 12 years has averaged $2.8 million per year. Most of that revenue has been allocated to specific projects, with only $1 million in recently received revenue not yet being allocated. $16.1 million in PRS funds were actually spent during this time period, while another $4.8 million is currently encumbered due to contracts and agreements.[1] Therefore, the County has a total of $19.3 million allocated to projects that are still awaiting construction or further design.

The $19.3 million in unencumbered PRS funding can be broken out into the following approximate dollar amounts per priority area:

$5 million.....Regional pond projects on hold.
$4 million.....Regional ponds to be implemented over the next two years.
$4 million.....Watershed plan projects.
$6 million.....Various stormwater projects.

Fairfax County faces two major challenges associated with the PRS program. The first challenge is that because the PRS program is driven by new development, it will eventually cease to serve as a major revenue source once the County reaches build-out. If this is estimated to occur in approximately 20 years, the County anticipates that the revenue generating capacity of the PRS program between 2004 and 2024 will be approximately $45 million, or an average of $2.2 million per year. The second challenge is that while the total life-span of the PRS program is about 20 years, many watersheds, particularly in the eastern portions of the County, are currently at or near build-out. Because PRS funds must be spent in the same watershed where they were generated, many of the County's older urbanized areas will not be able to rely of PRS funds to solve evolving stormwater issues such as stream restoration, bacteria contamination, and infrastructure repair and rehabilitation. An illustration of this point is to compare the Cameron Run watershed, which

[1] The average annual PRS expenditure between 1998 and 2003 was $1.5 million. In 2004 this increased to $2.1 largely due to the implementation of regional ponds along rapidly developing Route 29 corridor and the watershed planning program.

was developed primarily during the 1950s and 1960s, with the Cub Run watershed, which is now experiencing rapid growth. While both watersheds have significant stormwater issues, over the past 10 years the PRS program has generated an average of $17,852 per square mile per year in the less densely populated Cub Run watershed. By contrast, the PRS program generated an average of only $4,693 per square mile in the more densely populated Cameron Run.

Watershed Improvement Districts

The Code of Virginia (§10.1-614 through 635) allows for the creation of watershed improvement districts (WIDs), noting that "Whenever it is found that soil and water conservation or water management within a soil and water conservation district or districts will be promoted by the construction of improvements to check erosion, provide drainage, collect sediment or stabilize the runoff of surface water, a small watershed improvement district may be established within such soil and water conservation district or districts… (§10.1-614)" Statutorily, WIDs have the power to levy and collect taxes and/or service charges to be used for the specific purposes for which the WID was created. WIDs are not widely utilized as they require a two-thirds majority vote via a referendum of landowners in the proposed district for both district creation and district tax and fee levying authority.

Application in Fairfax County Only two WIDs currently exist in Virginia, including Lake Barcroft in Fairfax County. The revenue generating capacity of a WID can be significant, since it is typically linked to real property value and included on the real property bill at a pre-established rate. For example, Lake Barcroft in FY 2005 set the assessment at $0.113 per $100/assessed value for a total of $610,000 in annual receipts. However, while the enabling legislation for WIDs is broad enough to potentially allow a WID to become a primary funding source for a community-wide stormwater management program, the practical applications and limitations of this mechanism have not led to any such use as a primary resource.

It is also important to note that the annual budget and assessment rate for a WID in Fairfax County is subject to review and approval by the Northern Virginia Soil and Water Conservation District, and then the Virginia Soil and Water Conservation Board. In addition, a separate WID Board of Trustees must be elected to manage the fiscal affairs of the WID.

In-Lieu-Of-Construction Fees

The major advantage of in-lieu-of-construction fees is that revenue from smaller projects can be combined to be used on a regional basis, or where measures can have the most impact. In-lieu-of-construction fees also allow a locality to gain some benefit if it is determined that a stormwater requirement should be waived or reduced due to site specific constraints. A disadvantage of in-lieu-of programs is that the revenue stream is dependent upon the pace and nature of development from year-to-year. As a result, in-lieu-of fees are usually best applied to one-time projects or programs.

Application in Fairfax County Fairfax County had an in-lieu-of-construction fee system until the adoption of the Pro-Rata Shares program in the early 1990s. At that time, the County determined that the two programs were in conflict and the in-lieu-of-construction fee system was abolished. Currently, if a stormwater requirement is waived, there is no monetary recuperation.

Neighboring Arlington County and the City of Alexandria have adopted fee-in-lieu-of programs under their Chesapeake Bay Preservation Ordinances. Under these programs, land disturbers may, under specific circumstances, pay into a fund (Watershed Management Fund in Arlington/Water Quality Improvement Fund in Alexandria) in lieu of constructing an on-site stormwater management facility. Payment into the fund is based on a dollar amount per square foot of impervious surface cover that would need to have otherwise been treated. In Arlington, the current fee of $2.50 per square foot of impervious surface cover was set in February 2003. Alexandria has not yet set a rate under its newly revised ordinance. In Arlington County, it is estimated that the Watershed Management Fund has a short-range annual revenue generation capacity of approximately $300,000.

Federal and State Funding Opportunities

There are very limited federal and state funding mechanisms available to provide ongoing support for local stormwater management programs. Federal involvement in stormwater management (other than regulatory programs) is typically limited to advisory assistance, cooperative programs such as those provided by the United States Geological Survey and the United States Army Corps of Engineers, and emergency response. The Commonwealth of Virginia has stormwater initiatives in both the Department of Environmental Quality and the Department of Conservation and Recreation.

One way that many communities have succeeded in acquiring limited funding for stormwater management projects is through grants. Federal and state governments, as well as select foundations, have provided project funding for communities that are willing to propose and implement innovative projects to control stormwater runoff or restore streambeds to a more natural condition. In Virginia, the Water Quality Improvement Act (WQIA) was established in the 1990s to support Tributary Strategy implementation through the creation of the Virginia Water Quality Improvement Fund (WQIF). However, the WQIF allocation formula for state funding leaves it vulnerable to the ebb and flow of Virginia's economic climate, and thus has been an inconsistent funding source. Another major source of grant funding is the Chesapeake Bay Program's Small Watershed Grants Program. In 2003, the Chesapeake Bay Program disbursed approximately $2.75 million to 75 recipients, with a typical range of $20,000 to $40,000 per recipient. However, both the WQIF and the Small Grants Program exclude projects involving direct regulatory compliance, thus rendering them unusable for direct funding of mandated permit compliance activities.

A common requirement of grant funding is local cost-share. One advantage of having a dedicated source of revenue for stormwater is a greater ability to take advantage of state and federal cost-share programs. For instance, Prince George's County, Maryland, which has a dedicated source of stormwater funding, takes advantage of over 90% of federal flood control cost-share opportunities.

Application in Fairfax County Recent examples of state and federal funding received by Fairfax County include (approximately):

- $6 million in federal funding earmarked for rehabilitation of dams associated with four PL 566 flood control facilities in the Pohick Creek watershed.
- $250,000 provided by the Federal Emergency Management Agency in response to Hurricane Isabel to re-map floodplains in the New Alexandria area; and,

- $2.1 million provided by the U.S. Army Corps of Engineers (in addition to $211,000 in cost share provided by Fairfax County and Prince William County) to dredge the Occoquan River.

General Obligation and Revenue Bonding

Virginia statutes (Code of Virginia §15.2-2114) authorize the use of bonds by local governments to finance capital improvements to infrastructure and equipment for stormwater control programs. Bonds are not a revenue source, but a method of borrowing. They are most commonly used to pay for major capital improvements and acquisition of other costly capital assets such as land and major equipment. Capital improvements can also be funded through annual budget appropriations, but annual revenues are often not sufficient to pay for major capital investments.

The chief advantage of bonding is that it allows construction of major improvements to be expedited in advance of what can be funded from annual budget resources by spreading the cost over time. In the case of stormwater management, expediting a capital project by several years through bonding may result in significant public and private savings if flooding, other damaging impacts, and inflation of land acquisition and construction costs are avoided. The major disadvantage of bonding is that it is essentially a loan that incurs an interest expense, which increases the overall cost of capital projects, land acquisition, etc.

The two most prevalent types of bonding available are general obligation (GO) bonding and revenue bonding. GO bonding incurs a debt that has “first standing” with regard to public assets and is backed by the "full faith and credit" of the issuing agency. Because of this, public approval through referendum is required for initial issuance of GO bonds. All revenues, including various taxes, may be used to service GO debt. Revenue bonding is supported and ensured solely by revenues that are typically linked to the capital expenditure and recovered through some type of fee or specific tax. Creation of a separate source of revenue that is earmarked specifically for stormwater management (e.g., a stormwater service fee) would allow the County to sell revenue bonds if market acceptance was attained. However, revenue bonding would not be backed by the County’s full faith and credit, and would typically incur a slightly higher interest rate.

Generally speaking, bonds are not intended for use as a funding mechanism for day-to-day operations. However, some costs can be viewed either as a capital or operating expense. The lack of a clear distinction between remedial repairs and new construction, for example, results in bonding sometimes being used for major repairs that might also be considered an operating expense.

Application in Fairfax County The last GO bond for stormwater infrastructure approved by Fairfax County voters was the 1988 Storm Drainage Bond Referendum. The bond was in the amount of $12 million. The last bonds were recently sold, and all money is obligated and will be spent in the next few years. It is worth noting that not all bonds pass the scrutiny of the voters. A 1990 stormwater bond presented to Fairfax County voters was defeated. There have been no additional stormwater bond attempts since that time.

Other Innovative Funding Arrangements

While the above represent the most typical sources of revenue for stormwater, Fairfax County has had success in creating innovative funding arrangements to meet specific needs. For example, the County has just recently started to require maintenance escrow accounts for innovative BMPs and low impact development techniques such as rain gardens. While the arrangement doesn't represent a new source of funding for new projects, it does create an insurance policy so that County funds will not need to be spent correcting for maintenance deficiencies on private property. While these agreements are currently done on an ad hoc basis depending on the facility, this practice may grow if it is successful.

The County is also implementing an innovative program with respect to state and federal wetland mitigation banking requirements. Until recently, mitigation could take place anywhere within two large watersheds (Upper Potomac and Occoquan) – and not necessarily within Fairfax County. As a result of conversations with the Army Corps of Engineers, developers pay the Nature Conservancy, which keeps the funding in escrow until there is a local project. There is no estimate yet on the revenue generating capacity of this mechanism.

D. Summary of General Applicability of Revenue Sources

The following is a comparative summary of the generating capacity, equitability, and stability of the primary and secondary revenue sources discussed in this paper.

	AREA OF APPLICABILITY								
Revenue Source	**Generating Capacity**			**Ability of Source to Finance Stormwater Equitably**			**Stability of the Source**		
Real Property Tax (General Fund)	High	Medium	Low	High	Medium	**Low**	High	**Medium**	Low
	General Fund revenues can provide for the full cost of service to the community.			Owners of real property pay regardless of contribution to stormwater infrastructure.			Stability for stormwater dependent on other annual budget priorities.		
Stormwater Utility Fee	**High**	Medium	Low	**High**	Medium	Low	**High**	Medium	Low
	Stormwater user fees can provide for the full cost of service to the community.			Owners of real property based on contribution to stormwater infrastructure.			Based on assessment of stormwater needs.		
Inspection/ Review Fees	High	**Medium**	Low	**High**	Medium	Low	High	**Medium**	Low
	Relatively minor, but can fund substantial amounts of specific program functions.			Strong link between the source and the regulated activity.			Based on rate of development.		
Special Assessments	High	**Medium**	Low	**High**	Medium	Low	**High**	Medium	Low
	Assessment is determined by cost of improvements needed. Generation capacity significant for localized projects.			Used for a small area where a specific improvement is required and specific properties directly benefit.			Stable source of revenue once established.		

Revenue Source	AREA OF APPLICABILITY		
	Generating Capacity	Ability of Source to Finance Stormwater Equitably	Stability of the Source
Pro-Rata Shares	High / **Medium** / Low	High / **Medium** / Low	High / **Medium** / Low
	Medium to high depending on the watershed. Used to make regional improvements over time. Typically not sufficient to cover the cost of all improvements.	Funding provided by those that impact the drainage basin. In newly developing areas, this can be highly equitable.	Based on rate of development.
In-Lieu-of-Construction Fee	High / **Medium** / Low	High / **Medium** / **Low**	High / **Medium** / Low
	Used to combine revenue for use in larger projects, or where greater water quality benefits can be realized.	Same issue as pro-rata shares. Depending on what the fee is in lieu of, there may need to be a nexus between how the funding is spent and water quality improvements.	Based on rate of development.
Watershed Improvement District	**High** / **Medium** / Low	**High** / Medium / Low	**High** / Medium / Low
	Medium to high based on area of the WID and the assessment rate. Difficult to establish.	Must be a direct link between the source and beneficiaries.	Based on assessment of stormwater needs.
State/Federal Grants	High / Medium / **Low**	High / Medium / Low	High / Medium / **Low**
	Typically less than $100,000. $30,000 to $50,000 common.	Use is dictated by the grant source.	Used for specific demonstration projects, not a stable source of revenue.
Bonding	**High** / Medium / Low	High / Medium / **Low**	High / **Medium** / Low
	Capacity can be significant.	Bond debt paid only by all taxable property owners regardless of contribution to stormwater infrastructure. No non-taxable properties contribute to reducing the debt.	Applicable for one-time capital expenses. Not meant as a source of revenue for ongoing expenses.

Fairfax County Stormwater Advisory Committee
Stormwater Needs Assessment Project
Background on County Water Resource Mandates

Fairfax County's stormwater management program is increasingly driven by State and federal regulations, mandates, and initiatives. While it is not possible to present a comprehensive list of all State and federal issues that will affect Fairfax in the next few years, the following touches on a few key emerging issues that are likely to require attention in the County's stormwater program. Mandates and initiatives of particular concern include Virginia Pollutant Discharge Elimination System (VPDES) Municipal Separate Storm Sewer System (MS4) permitting requirements, Total Maximum Daily Load (TMDL) regulatory requirements, implementation of recent changes to the County's Chesapeake Bay Preservation Ordinance, changes in the State's enforcement of the Erosion and Sediment Control Regulations, Virginia's Potomac Tributary Strategy process, Clean Water Act wetlands permitting, the Virginia Dam Safety Act, and the GASB 34 infrastructure valuation protocols.

Virginia Pollutant Discharge Elimination System (VPDES) Permit

Under the State Water Control Law, Fairfax County was required to obtain a Virginia Pollutant Discharge Elimination System (VPDES) permit from the Virginia Department of Environmental Quality (DEQ) to discharge stormwater through its municipal separate storm sewer system (MS4). The County's current permit was issued on January 24, 2002 and remains in effect until January 24, 2007, at which time the County will be required to re-apply for permit coverage. Fairfax County submits an annual progress report to DEQ to demonstrate compliance.

The permit requires the County to develop and implement a Storm Water Management Program that addresses the following watershed management priorities:

- Structural and Source Controls – including inspection and maintenance of stormwater management facilities and BMPs;
- Areas of New Development and Significant Redevelopment;
- Roadways – includes non-VDOT roadways in Fairfax County;
- Retrofitting;
- Pesticide, Herbicide, and Fertilizer Application;
- Illicit Discharge and Improper Disposal – includes a program to effectively prohibit the introduction of non-stormwater elements into the County's MS4;
- Spill Prevention and Response;
- Industrial and High Risk Runoff;
- Construction Site Runoff;
- Storm Sewer Infrastructure Management;
- Public Education; and
- Monitoring Programs – including a dry weather screening program, a wet weather screening program, and an industrial and high-risk runoff monitoring program.

The County has begun its implementation of these permit priorities with the completion of the Stream Protection Strategy (SPS) and the initiation of the County's watershed management planning process.

It is likely that Fairfax County's VPDES permit will become the vehicle for the State to implement a variety of other initiatives and mandates that have stormwater components, including the TMDL (Total Maximum Daily Load) and Tributary Strategies programs, discussed below. Currently, TMDLs and Tributary Strategies are Virginia responsibilities. However, both programs will require implementation measures that are under local government control. As a result, it is likely that the State will incorporate these programs into future iterations of the County's VPDES permit, and stormwater pollutant effluent limits are a possibility for compliance with TMDL measures.

Chesapeake Bay Preservation Act/Regulations

The County adopted an amended Chesapeake Bay Preservation Ordinance (CBPO) in July 2003 (effective November 2003) in response to changes in the Virginia Chesapeake Bay Preservation Area Designation and Management Regulations. The County made several changes that affect stormwater management. Major impacts include the following:

- The County expanded the scope of its Resource Protection Areas (RPAs), in conjunction with mandated state changes, to include all water bodies with perennial flow, which resulted in a significant increase in the number of waterways to which the RPA designation applied. RPAs are the corridors of environmentally sensitive lands that lie alongside or near the shoreline of streams, rivers, and other waterways. To determine the extent of water bodies with perennial flow in the County, the Stormwater Planning Division engaged in a two-year stream-mapping project that led to the County's revised Chesapeake Bay Preservation Area map (see http://www.fairfaxcounty.gov/gisapps/pdfviewer).
- The amended Chesapeake Bay Preservation Ordinance (CBPO) also required amendments to the County's Subdivision Ordinance (Chapter 101); Erosion and Sediment Control Ordinance (Chapter 104); and Zoning Ordinance (Chapter 112). The changes cover a variety of topics including changes to the performance criteria for development and redevelopment in RPAs and Resource Management Areas (RMAs); changes in the information to be provided with plans of development and applications for construction permits; and changes to the procedures and criteria for granting of exceptions to the requirements of the Chesapeake Bay Preservation Ordinance.

Total Maximum Daily Loads

The Total Maximum Daily Load (TMDL) requirements of the federal Clean Water Act represent a significant regulatory challenge for the County. A TMDL must be developed for any stream identified as violating State water quality standards. TMDL stands for Total Maximum Daily Load, and represents the maximum amount of a pollutant that can enter the stream without violating water quality standards. After the TMDL is set, the affected localities must develop a plan for how pollution will be reduced to the necessary levels. The following stream segments in Fairfax County are listed in Part 1A of the Virginia Department of Environmental Quality 2002 303(d) Impaired Waters TMDL Priority List:

Stream Name	Impairment Cause	TMDL Due
Sugarland Run	Fecal Coliform	2014
Difficult Run	General Standard (Benthic)	2010
Pimmit Run	Fecal Coliform	2014
Tidal Potomac River (Wilson Bridge to Brent Point)	Fish Tissue – PCBs	2014
Hunting Creek/Cameron Run	Ammonia; Fish Tissue – PCBs; Fecal Coliform	2010
Backlick Run	Fecal Coliform	2010
Little Hunting Creek	Fish Tissue – PCBs	2014
Pohick Bay	Ammonia; Fish Tissue – PCBs	2014
Accotink Creek*	Fecal Coliform; General Standard (Benthic)	2002-2014
Pohick Creek	Fecal Coliform; Fish Tissue – PCBs; PAH	2014
Bull Run	General Standard (Benthic)	2010
Popes Head Creek	General Standard (Benthic)	2010
Occoquan Bay	pH; Fish Tissue – PCBs	2010
Mills Branch	Fecal Coliform	2014

* The TMDL plan for a 4.8 mile stretch of Accotink Creek for a fecal coliform impairment has been developed. The remaining impairments on Accotink Creek do not yet have a TMDL plan developed.

In addition to these listed water bodies, Fairfax County, in conjunction with the cities of Alexandria and Falls Church, Arlington County, and the Northern Virginia Regional Commission, have also developed a TMDL plan for the Four Mile Run watershed.

The challenge associated with many of Fairfax County's potential TMDLs, based on the list of impaired waters, is that the reductions required are likely going to be unachievable because of the large component of pollutant loadings from natural (and therefore largely uncontrollable) sources. For instance, the Four Mile Run TMDL estimates that wildlife sources (including waterfowl and raccoons), which comprise approximately 70% of the fecal coliform bacteria sources, need to be reduced by 95% in order to meet water quality standards. While the U.S. EPA recognizes the limitations of reducing wildlife sources, local governments will be required to demonstrate that they have reduced controllable sources to the maximum extent feasible, based on the TMDL standards issued in each. If by reducing controllable sources Virginia's water quality standards are not met, Virginia will need to conduct a Use Attainability Analysis to revise water quality standards for the impaired stream segment and/or change the designated use for the water body. Such a process has a high burden of proof under the Clean Water Act.

A concern for the future is that Virginia is in the process of adopting water quality standards for nutrients. Up to now, Virginia has not had such a standard, although the primary source of pollution to the Potomac River and the Chesapeake Bay are

phosphorus and nitrogen – both nutrients. While the ultimate impact of the adoption of new water quality standards is not presently clear, it could mean that Fairfax's streams will be subject to additional regulatory requirements. These requirements may lead to specific stormwater pollutant effluent limits under the County's VPDES permit, as discussed in the previous section.

Erosion and Sediment Control Law/Regulations

In accordance with state law, Fairfax County administers a local erosion and sediment control program governing land disturbances throughout the County. The erosion and sediment control law and regulations are designed to mitigate the impact of land disturbances and clearing on receiving streams and other waterways. The Virginia Department of Conservation and Recreation administers the state erosion and sediment control law and regulations, with the vast majority of Virginia's local governments administering a local E&S program that must be consistent with the state law. DCR's local program review process has been updated recently and has become considerably more rigorous. In addition, DCR revamped the process to ensure that local programs are brought into compliance much faster than before. Programs found inconsistent with the State regulations must enter into a Corrective Action Agreement (CAA) with DCR that outlines a plan for addressing identified deficiencies. Once a CAA is signed, the locality is deemed "provisionally consistent." After the CAA is completely implemented, then a locality is considered consistent. As of August 2003, the Virginia Department of Conservation and Recreation (DCR) rated Fairfax County's program as "provisionally consistent."

Chesapeake Bay Program/Virginia Tributary Strategies

The multi-jurisdictional 2000 Chesapeake Bay Agreement commits Virginia to remove the Chesapeake Bay from the U.S. EPA's list of impaired waters by the year 2010. The draft Shenandoah and Potomac Basins Tributary Strategy, release in April 2004 to implement the nutrient and sediment reduction goals of the 2000 Chesapeake Bay Agreement, relies heavily on urban BMPs. In the Potomac basin alone, the draft Tributary Strategy includes 187,000 acres of urban nutrient management and 71,000 acres of urban retrofit with bioretention facilities, swales, and other innovative BMP practices. These urban BMPs are expected to cost $240 million through 2010, for the region. While the Tributary Strategies program is technically voluntary, failure to meet target reductions has the potential to result in a Chesapeake Bay-wide TMDL. If the Federal government takes such action, it would effectively supplant the voluntary Chesapeake Bay Program and make implementation mandatory, likely through the County's VPDES permit. DCR will be releasing a revised Tributary Strategy Plan in the next few months, which will include revised cost estimates for impacts. DCR has indicated that cost estimates are likely to increase. DCR has also indicated that it will provide additional specificity to the costs, including a breakdown of actions by locality.

Wetlands Permitting

In addition to the items listed above, Fairfax County is also required to comply with regulations regarding impacts to Waters of the U.S. and Waters of the Commonwealth (which differ in geographic extent due to recent Supreme Court decisions and state law changes in 2001), both tidal (the Potomac is tidal up to Little Falls) and non-tidal (such as streams, wetlands and most ponds).

Most activities in the non-tidal waters are regulated by the U.S. Army Corps of Engineers (USACE) under Section 404 of the Clean Water Act, and the Virginia

Department of Environmental Quality (DEQ) under Section 401 and the Virginia Water Protection Program, as well as by the Virginia Marine Resources Commission (VMRC) if impacts involve a non-tidal stream with a drainage are greater then 5 sq. miles (VMRC regulates all tidal waters under separate State law). They notify and often consult with other related agencies (such as EPA, USFWS, VDHR and VDCR) during the permit review process to deal with water quality, endangered species, and cultural resource issues related to these permits. The most common activities Fairfax County typically obtains permits for in these areas are road crossings, utility lines, stormwater facilities (including maintenance), trail construction, stream restoration, and grading for park and school construction. The County also requires (under Chapter 118) any one developing land under a County permit issued by LDS to certify in writing on the plan that they will receive such approvals prior to any disturbance of such regulated areas.

Activities in tidal wetlands (non vegetated or vegetated) are regulated by the same agencies described above, as well as by the Fairfax County Wetlands Board which is supported with staff from the The Fairfax County Department of Planning and Zoning. The types of activities often permitted by this board include the construction of bulkheads, piers, rip-rap revetments on eroded shores, bank stabilization, or dredging in areas above MLW (dredging in deeper waters is still regulated by the other agencies described above - but not by the Fairfax Wetlands Board since such areas are not wetlands).

Dam Safety

As the owner of several state regulated dams, the County is also subject to the terms of the Virginia Dam Safety Act. The Virginia Dam Safety Act covers all dams in the Commonwealth that are not specifically excluded. Dams may be excluded if they are:

- Less than six (6) feet in height;
- Have a capacity less than 50 acre-feet* and are less than 25 feet in height**;
- Have a capacity of less than 15 acre-feet and are more than 25 feet in height;
- Are used for primarily agricultural purposes and have a capacity*** of less than 100 acre-feet;
- Are owned and operated by the Federal Government; or
- Are operated for mining purposes as defined by the Code of Virginia.

* 1 acre-foot equals 43,560 cubic feet.
** The height of a dam is defined as the vertical distance from the stream bed at the downstream toe to the top of the dam.
*** The capacity of a dam is defined as the volume capable of being impounded at the top of the dam.

The Virginia Dam Safety Act requires the owners of state regulated dams, depending on their hazard classification, to apply to the Virginia Soil and Water Conservation Board for an operation and maintenance certificate. The application must include an assessment by a licensed professional engineer as to the dam's condition and must include an operations and maintenance plan along with an emergency operations plan. Certificates are typically issued for a period of six years. Periodic inspections by a licensed professional engineer are required at intervals between every two (highest hazard) and every six years, depending on a dam's hazard classification. All regulated dam owners,

including the County, must inspect their regulated dams at least annually during the years when an engineer's inspection is not required.

GASB 34

In addition to the water-resources related mandates with which the County must comply, other accounting mandates have an impact on stormwater management in Fairfax County as well. The Governmental Accounting Standards Board (GASB) issued Statement 34 in June 1999. The intent of GASB Statement 34 is to more accurately reflect the financial activities of state and local governments in their financial reports. Items that must be reported through the GASB process include all capital assets, including infrastructure. The report must demonstrate the depreciation expense – or cost of "using up" capital assets. GASB notes specifically "infrastructure assets are not required to be depreciated if (1) the government manages those assets using an asset management system that has certain characteristics and (2) the government can document that the assets are being preserved approximately at (or above) a condition level established and disclosed by the government. Qualifying governments will make disclosures about infrastructure assets in required supplementary information, including the physical condition of the assets and the amounts spent to maintain and preserve them over time" (Overview, GASB Statement Number 34). If the County is unable to demonstrate investment over time in its stormwater system infrastructure, the continued depreciation of the system, with no significant system replacement strategy in place, could impact the County's AAA bond rating.

Fairfax County
Stormwater Needs Assessment Project
Level and Extent of Service Discussion Paper
Background

I. Definitions

The policy on service level philosophy defines how the County will approach its stormwater management and flood control program in the future. It generally describes how services will be administered, performed, and measured. The County's service level philosophy is likely to change gradually over time as the program is refined and expanded to address mandates from Federal and State regulators on water quality protection. In addition, physical system operation and maintenance standards will also adjust as community needs and expectations are met.

The objective at the outset, to assist the County in defining program priorities and service levels, is to identify what options exist and what are the most practical policy positions for the County in terms of where services should be performed, the extent of various types of services performed on the drainage system, and the level of service to be delivered. The following definitions delineate the major segments of the service level philosophy policy issue.

- Service Area addresses the geographical area where the County should accept responsibility for and perform stormwater management and flood control services through its stormwater program, providing regulatory control, capital improvements, and operations. It defines the "outer geographic boundaries" of the County's program in actual application. The service area may be different from the jurisdictional limit of the County which remains its legal corporate boundaries.

- Extent of Service addresses the application of specific stormwater responsibilities and activities to the physical systems. It defines the "inner boundaries" of specific elements of the stormwater management and flood control program in a manner similar to the way Service Area defines the outer boundaries. The philosophy guides decisions on how far up into the various types of systems the County should regulate, improve, and maintain stormwater facilities and conveyance.

- Level of Service policy defines system performance capability objectives, the condition that should exist in each type of system, and/or how much production is desired in certain activities. They also dictate how system performance and conditions should be judged, measured, estimated, or otherwise validated, and how productivity yardsticks can be used to guide management decisions.

Service area, extent of service, and level of service decisions are closely related and are meant to complement each other. Service area is probably the easiest to define or

establish because it is less dependent on other information. Extent of service decisions rely on information about the stormwater systems on public and private properties, the services to be provided and maintained, accessibility, and legal precedent. Much of the information required for making detailed extent of service and level of service decisions is readily available in the County, and a guiding principle defining County responsibility can be developed.

II. Service Area

For most communities the process for identifying the "service area" is a moot point as the service area is coincident with the political boundaries (except where the boundary abuts and crosses an extensive Federal, state, municipal or private facility where stormwater services may be performed by that owning agency). Within the political boundary for Fairfax County are three incorporated cities that manage their own stormwater programs (Fairfax City, Herndon and Vienna), so the service area does not match the political boundary of the County. In addition, the responsibilities and role in serving area within Clifton must be addressed.

A statement that clarifies the responsibility of the County is appropriate and important to ensure that community expectations are managed and met. To the extent that Fairfax County influences or controls decisions for plan review, system development standards, water quality protection and infrastructure operation and maintenance, it should exercise its authority in coordination with other aspects of its stormwater program goals, objectives, plans, and operating policies. Understanding the County government's role within its jurisdictional boundary starts with identifying the geographical limits.

A specific statement of service area should be developed to establish appropriate expectations of responsibility.

III. Extent of Service

Overview

A drainage system, starting from its headwaters at a ridge line and moving downstream, typically carries incrementally larger and larger flows. At the upper-most point in any given watershed, or along any given drainage path, the County's stormwater management role would likely be minimal or limited solely to regulatory responsibility for the private management of on-site systems, water quality management, and erosion and sediment control. At some point in each drainage system the County generally assumes a basic level of responsibility for the condition and operational performance of segments of the physical system, though that responsibility is commonly limited by the legal and/or physical accessibility of the systems. Moving downstream in the systems, the County typically provides more and more services due to increasing cumulative impacts from individual properties as flow increases and individual property impacts become difficult to isolate and measure. Additional operational functions and capital improvement responsibilities are added as circumstances warrant, and acquisition of adequate access becomes a more important part of the program as the size of the tributary area and volume of flow increases.

As a stormwater program matures, this dynamic situation usually tends to move the extent of the County's various responsibilities upstream with the County taking on responsibility for more and more of the physical system of conveyance, storage and treatment. Reasonable

and practical limits inevitably stop short of extending public responsibility to the very upper most reach of a hydrologic system. For example, the ridge of a house roof is the upper most limit of a very small drainage area, but it would be unrealistic for the County to be responsible for the gutters and downspouts leading from each roof. A small swale carrying stormwater from a ridge line between a few houses would not usually be publicly improved or managed. Case law related to public responsibility for the impact of storm and surface water and the practical demands of effectively managing stormwater systems generally combine to determine the upper limits of public responsibility for the systems. Beyond that point, the private property owners have responsibilities as determined by the basic water law regime operative in each state.

Legal Implications of the Extent of Service Definition

Fairfax County owns conveyance systems, which are constructed, owned and operated for the public's benefit. The express power to grade and open streets implicitly carries with it the power of local governments to establish a storm drainage system. In Virginia, the majority of roadways are designed, regulated and/or built by the Department of Transportation (VDOT). The physical drainage system found in the right-of-way of the State highway system is the responsibility of VDOT.

The power of construction of conveyance systems for stormwater flow management does not include the right to redirect surface waters onto adjacent private properties, to the landowner's detriment. In such cases the owner may pursue litigation for damages. Therefore, the duty of the local government is two-fold. It must adequately design and construct its drainage conveyance system so as not to divert water onto private property in quantities above that of its natural flow so as to cause damage, and thereafter it must maintain the drainage system so that its operation does not constitute a nuisance.

Private developers build houses and other structures, often diverting the surface waters from their lots into the streets. Some divert their waters directly into the public drainage system; while others construct their own systems then publicly dedicate the drainage system to the local government. In other cases, the ownership of the drainage system is maintained by the private property owner but a dedicated easement is granted to the local government for maintenance purposes, usually defined within the dedication process. Upon acceptance of dedication of the drainage system, the local government becomes responsible for the maintenance and repair of the system.

These thoughts lead naturally to the conclusion that a local government would be well advised to think of the drainage system in a manner similar to the water and waste water collection systems. In these other systems there is a clear break point where private responsibility stops and fee-based public responsibility begins. For drinking water it is at the meter. For wastewater it is when the drain pipe first connects to a local sewer main. For stormwater there should also be a clear demarcation point. There are several delimitations local governments have used in the past, listed in order of least to most comprehensive:

- the right-of-way edge line of publicly owned property;
- the right-of-way edge line plus locations where a permanent easement has been obtained;

- the above limits plus major creeks and ditches;

- the above limits plus all segments where public (i.e., runoff from public property) water flows.

Implications of Extent of Service Definition

It is important that the County specifically define the "public" drainage system as part of its extent of service analysis. A definition of the "public" drainage system helps to answer questions such as: When is a ditch or stream part or NOT part of the local stormwater system that is public responsibility for services?

The definition of "stormwater facility" or "flood control facility" must take into account a broad range of structures, conveyances, and flood and pollution protection measures. We can presume that the definition of a flood control facility includes all structures and conveyances over which the local government has assumed responsibility to improve, protect and use to control or convey storm runoff flows. It includes all activities that keep flood waters from people and people from flood waters. There are over 1100 public stormwater management facilities maintained by the County and there are over 2200 privately owned facilities. The County maintains approximately 1400 miles of storm sewer and 800 miles of streams.

On the surface it may seem appropriate to exclude rivers, creeks and streams within a local community from the definition of service extent. However, the idea that these bodies of water along with all discharges from the local community into them are, in some measure, the responsibility of the local community is strongly supported by laws such as the 1987 Water Quality Act and its implementing regulations. The County is responsible for implementing control programs on all dischargers to waters of the state through its regulatory and land use authority, its mandated illicit connections and illegal discharge program, its requirement for the use of BMPs, its requirement for regulation of industrial discharges, and the State's mandate for inspections of construction sites.

Secondly, should the stream reach in question be placed on Virginia's 303(d) list (i.e., the list of waters of the state that are impaired and not performing under designated uses) and storm runoff sources are identified as contributors to the impairment, the County will likely be required to take responsibility for control of the pollutant of concern.

Thirdly, distinguishing between most receiving waters and stormwater conveyance systems is becoming nearly impossible. Most local communities spend a large amount of revenue on the major stream system protecting major streams from instability and pollution and riparian properties from flooding. All these riparian properties drain to these systems and their flow is carried through or past flood control and bank protection works just as surely as those who first flow through a ditch or pipe section on the way to larger ditches, streams or rivers. The County's Stream Protection Strategy, Chesapeake Bay Preservation Ordinance and establishment of Resource Protection Areas demonstrate the degree of responsibility the County has outlined for itself.

And lastly, all properties and their owners, regardless of location, benefit from installation of an adequate stormwater management system, and the proof of special benefit assigned to each property is not necessary on a property by property basis for the County to assume responsibility for the management of stormwater runoff. All property

owners share in the general benefits of cleaner water, safe streets during storms, greenway systems, environmental education, and sounder development practices.

Based on the above discussion, it is not recommended that the County make any distinction in its definition of its "public" stormwater system based on property location with respect to any drainage conveyance or stormwater pollutant control or flood control facility. The definition should be broadly defined to identify areas of responsibility, but should be exclusive by clarifying those system features that are distinctly private or owner issues.

It is recommended that Fairfax County define its extent of service to include all storm drainage segments that carry runoff water from County-owned property and County rights-of-way, clarifying its relationship to VDOT and the street network drainage, and that it also extend some type and level of service to defined segments identified through a currently maintained stormwater system inventory, and on a prioritized manner over time. Criteria for determining public responsibility should be defined to the extent practical so that it can be communicated to the public and give clarity of purpose for the organizational units of County government responsible.

IV. Level of Service

Most communities must struggle with imprecision as they define the desired levels of service to be provided in broadly varying conditions. Stormwater systems, conditions, and service needs are typically diverse, ranging from newly developed urban setting to older undersized and decaying infrastructure.

There are several levels of service that can be defined. The basis for this definition is that some segments, if failing, will result in more severe damage or higher risk to human health and property, and thus should be treated to a higher level of service. The key is that similarly situated properties are treated in a similar and consistent manner.

It might be that the highest level of service is reserved for those segments that are within a County-owned facility (or structure) or within a permanent easement and, if failed, would block roads or flood habitable property. If a property owner wanted and qualified for this level of service, they would need to grant a free permanent easement. Similarly, the level of service would be low for a segment of the drainage system that is not within an easement or directly owned by the County and where system failure would result in little damage. Regulatory oversight through inspection of the facility every couple years and complaint related service only may be appropriate.

Once a service level philosophy and approach are defined, more precise explanations of levels of service for various activities and types of system improvements can be formulated and the cost of attaining those objectives can be estimated. Adjustments can then be made in the levels of service in light of the need to balance priorities with the available funding. Several iterations of this process may be needed to devise the optimum initial level of service. Continual refinement is suggested to increase the usefulness of service level measures as the program evolves.

It is recommended that the County initially define the desired levels of service simply reflecting current state of knowledge of the drainage system, and refine its level of service definitions within the first five years of an expanded program as knowledge of the system,

costs, and abilities to meet needs are clarified and experience is gained. The goal of the level of service decisions is that, over time, the County will achieve the goal that similarly situated properties are treated in a consistent and similar manner.

Discussion Points:

1. What are the limits of the physical infrastructure that the County should:

    a. perform operational responsibilities such as maintenance, rehabilitation or capital construction?
    b. regulate, oversee, inspect or otherwise establish standards of performance?

2. What standards of service should drive priorities for the operation, regulation and construction of the stormwater system?

Fairfax County
Stormwater Needs Assessment Project:
Stormwater Program Discussion Paper

I. Introduction

In order to translate the County's current and projected level and extent of stormwater service into a discussion on the stormwater program, the following paragraphs outline the County's current program from a service delivery, project development and implementation, and regulatory compliance perspective. The discussion also includes an overview of what the County stormwater program needs to accomplish based on information collected to date, including an assessment of potential future program elements, be they new or existing program components that may be altered or enhanced in some fashion. As mentioned in the Level and Extent of Service paper, the County's service level philosophy is likely to change gradually over time as the program is refined and expanded to address mandates from the Federal and State on water quality protection and dam safety. In addition, physical system operation and maintenance standards will also adjust as community needs and expectations are met. This discussion lays out the expected level and extent of County stormwater service in terms of the County's current program as well as anticipated and potential future programs.

II. Current Stormwater Management Program

Fairfax County's Department of Public Works and Environmental Services (DPWES) currently provides a variety of stormwater management services. DPWES is a multi-faceted agency providing the County with a wide range of services including construction of roads and utilities, construction and maintenance of County facilities and infrastructure, and enforcement of state and local codes relating to building planning and construction, land development, transportation, waste management, and other environmental protections. The Department contains six primary business lines, including Capital Facilities (CAP), Facilities Management (FAC), Land Development Services (LDS), Solid Waste Management (MSW), Wastewater Management (WWM), and Stormwater Management (STW). The STW business line includes the two line divisions that handle the vast majority of all County stormwater management services the Stormwater Planning Division (SWPD) and the Maintenance and Stormwater Management Division (MSMD).

Stormwater Management Divisions

Supported by other county, regional, and state agencies, the stormwater management business unit, and SWPD and MSMD in particular, are charged with "developing, promoting, and implementing strategies that protect the County's stormwater infrastructure and preserve and improve the natural ecosystem". Their mission has three key components:

- To develop and maintain a comprehensive watershed and infrastructure program that will protect public health and safety and will enhance the quality of life in Fairfax County;
- To plan, design, construct, operate, and maintain the infrastructure in compliance with all government regulations; and

- To be responsive and sensitive to the needs of the County's residents, customers, and public partners.

The Maintenance and Stormwater Management Division (MSMD) addresses maintenance and rehabilitation on the existing stormwater infrastructure. Maintenance services are provided in an effort to manage the capture and conveyance of stormwater runoff in order to mitigate flooding and improve the water quality of local water bodies. MSMD is responsible for the inspection and oversight of public and privately maintained stormwater management facilities, as required by state and federal water quality permits and provides support during emergency response (mostly flooding) operations.

The Stormwater Planning Division (SPD) addresses stormwater planning, monitoring, capital project design, and floodplain management services. This division is responsible for compliance and reporting related to the National Pollutant Discharge Elimination System (NPDES) stormwater permit. SPD also coordinates state mandated dam safety operation and maintenance certificates, emergency action plans related to flooding, watershed management efforts, stream monitoring and assessments, and public education and outreach initiatives.

Current Program Elements

The County's stormwater management program also consists of dozens of smaller operations that function together to meet the County's stormwater needs. These operations have been divided by functional cost centers to help further identify the many activities within the stormwater program. Table 1 shows how these can be combined into eight (8) functional centers.

Table 1 – Major Stormwater Management Functional Cost Centers

1. **Administration & Management** General Administration Purchasing HR Functions General Program Planning & Development Budget and Cost Controls Contract Management Legal Services Facilities Management 2. **Special Programs** Public Education/Outreach GIS, Mapping and Database Management Inter-Agency Cooperative Activities 3. **Billing and Finance** Billing Operations Customer Service Financial Management Capital Outlay 4. **Watershed Management Planning** Watershed Planning BMP Development Comprehensive Monitoring Program	5. **Engineering & Design** Design Criteria, Standards and Guidance BMP Analysis & Design Design, Field and Operations Engineering Hazard Mitigation Dam Safety Program Retrofitting Program Flood Insurance Program Community Rating System 6. **Operations & Maintenance** General Maintenance Management SW Management Facilities Maintenance Conveyance System Maintenance General Remedial Maintenance Emergency Response Maintenance Infrastructure Management GASB 34 Field Data Collection (inventory) Public Drainage System Inspection and Regulation Private Facilities Inspection & Regulation Public Assistance/Complaint Response

4. Watershed Management Planning cont. Stream Protection and Restoration BMP Programs and Activities Used Oil & Toxic Materials Spill Response and Clean Up Program for Public Education & Reporting Illicit or Cross Connections Illegal Dumping Multi-objective Planning Support Zoning Support Landfills and Other Waste Facilities	7. **Plan Review and Erosion Control** General Code Development & Review Stormwater System Inspections – new dev. Regulatory Enforcement General Permit Administration Erosion & Sediment Control Program 8. **Construction Services** Capital Improvements Construction Project Management Inspections Land, Easement, and R-O-W Acquisition

III. Current Stormwater Management Challenges

While Fairfax County is currently able to direct resources to address a range of stormwater management services, the County also faces significant challenges in establishing and maintaining a holistic, proactive stormwater management program. The County's challenges come in several forms, including regulatory compliance with state and federal water quantity and quality mandates; ensuring proper operation and maintenance of the County's stormwater management infrastructure and Best Management Practices (BMPs); and constructing and maintaining capital projects for the purpose of supporting the County's current watershed planning initiatives and providing the replacement and/or retrofitting of aging stormwater infrastructure as funding allows.

Planning Challenges

The County faces a variety of water resource-based mandates, both for water quality and for water quantity management, and currently expends a significant portion of its resources towards compliance with these mandates. Of note, the County must comply with the terms of its Virginia Pollutant Discharge Elimination System (VPDES) stormwater permit for the discharge of stormwater to the County's Municipal Separate Storm Sewer System (MS4). Compliance with the terms of the permit requires that the County meet the minimum control measures for pollution reduction and/or prevention, identified in the permit, to the maximum extent practicable. Activities include water quality monitoring, inspection and maintenance of the stormwater management system, and public education and outreach. Failure to comply can result in fines of up to $27,500 per day per minimum control measure violation.

Fairfax County is also charged with implementation and enforcement of several other significant water resource-based mandates, including the Chesapeake Bay Preservation Act, which requires that the County enhance management of the riparian areas immediately adjacent to its water bodies with perennial flow. The County's 2002 Stream Protection Strategy (SPS) study provided valuable information on the condition of the County's streams and led to the next phase of stream protection, which was to revise the method to assign Resource Protection Area (RPA) status to local water bodies by using perennial flow for Chesapeake Bay program approval. After receiving State approval of revised perennial stream protocols, the County surveyed (between 2002 and 2003) the headwater reaches of streams to designate perennial streams upstream of the original RPAs that were established in 1993. As a result, the length of the perennial streams in the County increased from over 600 miles to over 800 miles. These changes were

adopted by the Board of Supervisors in 2003 as amendments to the County's Chesapeake Bay Preservation Ordinances.

The County also faces a challenge in planning and eventual implementation of Total Maximum Daily Load (TMDL) plans for pollutants that are identified as violating Virginia's water quality standards, as well as implementation of programs to meet the pollution reduction standards called for in the Potomac/Shenandoah River Tributary Strategy, due out in the fall of 2004. Failure to act on these initiatives could result in the County losing primacy over its compliance programs and being forced to adopt a state or federal compliance protocol with the potential for little or no local input on implementation strategies.

In order to comply with these and other mandated regulations, the County has developed a watershed planning strategy for the study each of the County's 30 watershed sub-basins and that will address many of the compliance strategies required by these regulatory mandates. However, planning alone will not be enough to ensure compliance and move the County's service level forward. Once the watershed plans are developed, the County must be in a position to act on the recommendations established in those plans. The early watershed planning efforts in the Little Hunting Creek Watershed and the Popes Head Creek Watershed have identified a variety of priorities for watershed based initiatives, both structural and non-structural that will not only assist the County with its regulatory compliance mandates, but will move the County's stormwater management program forward by implementing BMPs and/or retrofitting existing structures to more adequately handle the County's stormwater management demand by maximizing the County's value from the initial resource commitment to watershed planning. Currently, the County's capital project implementation capability is limited and can only address the top two, of seven, Board of Supervisors' priorities for stormwater projects: regulatory mandates and home flooding. Implementation of the watershed plans over time will necessitate the development of the County's ability fund initiatives that will address all of the Board's seven project priority classifications.

Fairfax County residents are also relying on the County's stormwater management capability for more assistance in weather-related emergencies. Floodplain management, flood mitigation for residential structures, and pre-and post-flood disaster assistance and recovery assistance have become more prominent in the County in recent months as the tropical storm seasons of 2003 and 2004 have impacted Fairfax County residents.

Operational Challenges

At present, the majority of the County's infrastructure maintenance and inspection work is driven by regulatory compliance mandates and citizen complaints. At the same time that the County's regulatory mandates and population have grown, the County's stormwater infrastructure has also grown. The table below summarizes the current stormwater infrastructure, including the conveyance and collection system as well as stormwater management facilities, and the various entities responsible for maintaining the system:

		Fairfax County	VDOT	Property Owner
	Pipes	1,400 miles	1,000 miles	200 miles
Conveyance and Collection System	Inlets & Catch Basins	37,000	40,000	8,000
	Improved Channels	25 miles	20 miles	10 miles
	Natural Streams	800 miles	5 miles	400 miles
Stormwater Management Facilities	Onsite Facilities	1,100 facilities	75 facilities	2,200 facilities
	Regional Facilities	45 facilities	4 facilities	15 facilities

As the size of the County's population and infrastructure has grown, the County's ability to provide service for that population and infrastructure has struggled to keep pace. The County does inspect the stormwater infrastructure on a routine basis, but as the system has grown, the rate of inspection has decreased. Currently, Fairfax County inspects roughly 250 to 300 miles of its hard stormwater infrastructure per year, resulting in roughly a five-year inspection cycle. The County also inspects its stormwater management facilities once a year and inspects private stormwater management facilities about once every five years. These inspections often uncover a variety of problems, including tree root damage, collapsed pipes, erosion of endwalls, and piping through dams, all indicators of an aging infrastructure.

MSMD has a stated goal for maintenance of the system to "keep facilities in operational condition for their original purpose(s)." MSMD must limit its maintenance functions, however, to repair and corrections for existing facilities that require no more than three to five crew days per site, due to resource limitations. Maintenance issues that require more effort are either referred to SWPD for capital projects in an emergency (i.e. house flooding) or handled as much as possible in a five-day work assignment and then deferred to a "Replacement Program" which the County does not currently fund.

In addition, as the size of the County's infrastructure and population has increased, so has the time needed to respond to citizen drainage and stormwater complaints. The MSMD has developed a standardized evaluation and priority matrix for stormwater-related complaints. Of the three work priorities established, Work Priority 1 items are considered the most critical (i.e. home flooding, structural endangerment, road flooding, etc.). Between 2002 and 2004, MSMD has experienced a longer response time for these highest priority complaints, from 28.9 days to 41.9 days. Internally, the division's Work Priority 1 completion time goal is from immediate to two weeks.

Investment in capital improvements to the system, those enhancements that either provide new systems of conveyance, storage or treatment of stormwater or enhance the capability of the existing systems to perform such service, is extremely limited, averaging $2.5 million annually. The need for capital investment in the system is valued in hundreds of millions of dollars. The need for system improvements for stream protection will be identified in the watershed planning process. Completion of a system valuation for the conveyance portion of the infrastructure will add to the value of the backlog. Under

current funding, the known backlog will take a century or two to be built. It is sometimes difficult to grasp the magnitude of the problems.

IV. Projected Program Elements

To continue the County's current level of service and provide enhancements that meet the intent of a comprehensive, countywide stormwater management program, as well as address the issues that were identified in the current service discussed above, the following enhancements were identified in the initial phase of the Stormwater Needs Assessment Project. These are identified by functional cost center In Table 1 above.

1. ADMINISTRATION

- Develop and integrate a new, robust work order system to provide coordination and communications between operating units on needs and the action taken as well as provide useful information on the profile of problems, issues and system failures for budget projections. This should include necessary computer hardware, software, and training to ensure maximum efficiency of the system.
- Expand contract management capabilities by consolidating many of these services under an administrative contracts manager to relieve the Project Managers of the paperwork burden, improve effectiveness of the contract process and to increase the efficiency of the Project Management process.
- Establish a section for administration of the stormwater utility, if this funding option is pursued, to provide direct accountability for the tracking and authorization of funds and to manage the billing process.

2. SPECIAL PROGRAMS

- Increase public education activity to meet regulatory compliance and to increase public understanding of the goals and activities within the overall program, as well as engage them in participating in stormwater program activities.
- Obtain new data application software to allow tracking of multiple, integrated stormwater activities such as BMP installation, site inspection results, enforcement activities, and mitigation opportunities. Build a database management tool to increase staff efficiencies in serving the public and in improving stormwater system performance.
- Update and maintain watershed plans, hydraulic/hydrologic models, and capital improvement prioritization to increase the objective analysis of needs, provide for real-time impact analysis of proposed new development and to balance the needs of each watershed to ensure that funds are expended in a manner consistent with the goals of the Board and the community.
- Update and maintain the GIS impervious data layer to assist in setting priorities and in the on-going analysis of infrastructure condition and performance This tool is extremely valuable in maintaining a broad array of data on system conditions.
- Update and maintain physical stream assessment inventory and related maintenance activities as one key component in addressing regulatory demands and tracking potential TMDL activities.
- Set-up a grant or cost-share program to retrofit existing private stormwater facilities and to encourage installation of innovative BMPs. This approach can be effective by partnering with private owners of stormwater facilities to improve BMP conditions and performance capabilities.

3. WATERSHED PLANNING AND ENGINEERING

- Organize the Watershed Planning process to improve efficiency and effectiveness in overall planning capability. One senior planner should be assigned to specific watersheds to support implementation of each Plan's recommendations and meet the schedule to have all studies complete by 2010.
- Update and/or develop new BMP design standards that will provide strategies to comply with the regulatory mandates as well as provide appropriate public safety. Once the update is complete, increase level of service to ensure standards are updated in a timely manner.
- Increase use of stream gauges to enhance data collection to support water quality protection program, sediment transport reduction and flood protection activities.
- Complete upgrades or retrofits to recently regional or State designated PL-566 dams and complete design, construction and oversight of backlog of other facility retrofits to ensure that the system under County responsibility is performing effectively.
- Support increase in funding for capital improvement (i.e. design, inspection and contract management/project management) to ensure that the Watershed Plans can be implemented in a reasonable manner.

4. OPERATIONS AND MAINTENANCE

- Perform mowing and routine maintenance of facilities twice per year (increase from current level of service of once per year).
- Upgrade, within the next 10 years, all public stormwater management facilities so that they function properly. This includes management of the program for major pond rehabilitation projects.
- Implement a new dam safety program, including inspection and maintenance activities. Include vegetative management services at these facilities.
- Implement an enhanced enforcement capability to ensure private facilities are operating as designed.
- Increase frequency of the inspection of the storm sewer system so that the system can be managed in a proactive manner, rather than reactive to failures.
- Expand capability to perform storm sewer system upgrades and replacements by implementing an enhanced capability to repair, replace or retrofit components, moving to a proactive management strategy.
- Expand maintenance services to include inspection of and additional work orders on both public and private facilities that will be necessary as new BMPs (LIDs, innovative techniques) are installed.
- Reduce incidence of erosion through new stream "spot" improvements program and erosion control measures.

5. CAPITAL CONSTRUCTION

- Implement capital improvement projects (backlog estimated between $340 million to $800 million) over the next 20 to 40 years. These projects will position the County for regulatory compliance and facilitate restoration of the County's streams, 70% of which are in fair to very poor condition.
- Ensure capability of construction inspection and right-of-way acquisition services needed as a result of increase in capital spending.

The measures outlined above are designed to allow the County the ability to move from a reactive stormwater management program with a growing backlog of capital priorities to a more proactive program able to meet its capital, as well as regulatory and maintenance challenges.

Discussion Topics for the Committee

1. What should the priorities be for over the next decade, to address system performance in water quality protection and public safety?

2. Is the timing for "buying down" the capital backlog reasonable?

3. The enhancements outlined above provide for maintenance capability to not only provide better service to the infrastructure and stormwater BMPs already in the ground, but also to maintain new capital projects that come about as a result of the program over time. What principles should drive the expansion of maintenance services?

4. How should the County ensure the proper operation and maintenance of County-owned and privately held stormwater infrastructure and BMPs? Is regulation and enforcement sufficient? When should the County take responsibility directly for maintenance of the system?

LEVEL AND EXTENT OF SERVICE DISCUSSION PAPER
Policy Statement – December 2004

I. Definitions

The policy on service level philosophy defines how the County will approach its stormwater management and flood control program in the future. It generally describes how services will be administered, performed, and measured. The County's service level philosophy is likely to change gradually over time as the program is refined and expanded to address mandates from Federal and State regulators on water quality protection. In addition, physical system operation and maintenance standards will also adjust as community needs and expectations are met.

The following definitions delineate the major segments of the service level philosophy policy issue.

- Service Area addresses the geographical area where the County should accept responsibility for and perform stormwater management and flood control services through its stormwater program, providing regulatory control, capital improvements, and operations. It defines the "outer geographic boundaries" of the County's program in actual application. The service area may be different from the jurisdictional limit of the County, which remains its legal corporate boundaries.

- Extent of Service addresses the application of specific stormwater responsibilities and activities to the physical systems. It defines the "inner boundaries" of specific elements of the stormwater management and flood control program in a manner similar to the way Service Area defines the outer boundaries. The philosophy guides decisions on how far up into the various types of systems the County should regulate, improve, and maintain stormwater facilities and conveyance.

- Level of Service policy defines system performance capability objectives, the condition that should exist in each type of system, and/or how much production is desired in certain activities. They also dictate how system performance and conditions should be judged, measured, estimated, or otherwise validated, and how productivity yardsticks can be used to guide management decisions.

II. Service Area

Fairfax County is responsible for management of stormwater, through regulation, planning, maintenance, and capital improvements, in the area delineated by its corporate boundary except for maintenance and operation of systems in the City of Fairfax and the Towns of Herndon and Vienna.

III. Extent of Service

Overview

Considerable discussion regarding the extent of the physical system that should be under the management of the County resulted in the identification of the following concepts for the delineation of responsibility:

- The County should exercise planning and regulatory authority, within its legal limits and mandates, over the entire drainage system, both publicly and privately owned.

- It is recognized that the County is very limited in its influence over Virginia Department of Transportation drainage systems within the highway network, however, when the County partners with VDOT, every effort should be made to have the standards of system design meet the County's goals for water quality protection as well as water quantity controls. The County should consider cost-sharing with VDOT when County standards are adopted for a VDOT roadway project.

- The County should engage the Virginia Department of Transportation in discussions regarding an increased role of the County for some state-system drainage components. The County should ensure that compensation is provided to them for any responsibility taken on behalf of the State.

- The County needs to ensure proper operation and maintenance of the total system. The County should consider phasing in the public maintenance of privately owned systems. This would follow a process of inventory and inspection of the total system, GIS-based, enabling analysis through basin models to identify high priority system improvement needs.

    - The County should establish a standard for private facility maintenance and incorporate this standard through ordinance with enforcement strategies.
    - The County should survey private facility owners to determine their needs and expectations.
    - The County should evaluate, based on the information gathered through inspection of the system and survey of owners, whether the County should shift its current role (inspection and regulation) regarding privately owned system components to providing maintenance on the private systems through executed maintenance agreements that limit County liability and clearly delineate the responsibilities of each party (i.e., owner and County).

IV. Level of Service

The County should invest in resources sufficient to move the current maintenance, operation, regulation, planning and capital improvements for the stormwater system, including the protection of streams and stream corridors, to a proactive management strategy that anticipates challenges and has in place appropriate programs to provide for environmental protection and public safety, including protection from property loss. The County should adopt as a guiding principle that similarly situated properties be treated in a

similar and consistent manner. This should be a long-term goal and a standard for evaluation of the effectiveness of the overall services provided on behalf of the public.

Some specific recommendations for level of service include the following initiatives:

- The County needs a replacement schedule for infrastructure and that replacement standard should be set to meet build-out conditions in the watershed.
- The County should examine the use of innovative, non-hardened solutions to stormwater management issues. The County should utilize Low Impact Development strategies where possible.
- The overall stormwater management program should embrace the Board of Supervisor's recently adopted environmental principles.
- The County should maintain its "stream index" metric, which allows us to monitor how we are doing in improving stream health and viability.
- The County should account for the existing physical infrastructure, regardless of ownership, and future physical infrastructure by maintaining a physical inventory, including ownership identity. This should include an effective inspection program both to maintain the inventory and to identify condition and potential improvements required.

Preliminary Rate Analysis

1 Purpose

Several ways of structuring and calculating stormwater service fees (or "user charges") are employed by cities and counties throughout the United States. This section of the report summarizes several rate methodology options available to Fairfax County. The basic parameters employed for rate structures, plus modifying factors that can be applied to the various methodologies, are described. Other funding methods that can be blended with fees are identified.

The initially preferred rate structure and mix of funding may have to be adjusted as needs change over time. Information will flow from the capital improvement master planning in the future that may suggests that substantial capital investment is needed in the drainage systems. More remedial repairs and capital improvement needs may be identified as the watershed plans are implemented and existing systems continue to age. Stormwater quality management may become an even more demanding part of the program as the County's VPDES permit is renewed. It is anticipated that the Potomac Tributary Strategy recently established by the State, will be the foundation for performance parameters in the County's VPDES permit to be reissued in FY 2007.

2 Evaluation Criteria

The consultant team's experiences implementing a variety of stormwater funding methods elsewhere suggest that the most important factors in selecting a practical approach are the local circumstances, practices, and politics. Every community is different and needs a solution that fits its specific situation. Beyond circumstances unique to Fairfax County or the Virginia statutes, the following criterion was applied during the initial evaluation of the feasibility of the utility and during implementation discussions for the utility:

- Fund the program using a methodology that links the demand for services to the amount paid by any particular property owner.
- Provide a mechanism that recognizes positive behaviors by the land owner to reduce impacts on flow and pollutant loading.
- Dedicate the funding to the objectives of the stormwater program where the monies cannot be redirected to other competing priorities.
- Utilize a funding strategy that encourages greener development.
- Make the funding mechanism an equitable strategy, bringing all properties into the funding base, not just those paying real estate and other general fund revenues.
- Apply the funding strategy uniformly across the County.
- Utilize bond debt to support the capital improvement program.

None of the service charge rate structures or secondary funding methods examined during the preparation of the final policy for the utility is "perfect" under such a broad range of criteria. The listed order of the criteria above does not imply a priority, and no single consideration should outweigh the others to the extent that a rate methodology or secondary funding method is selected or rejected for any one reason.

3 Methodologies for Cost Allocation

The methodologies reviewed included *imperviousness*, *imperviousness and percent imperviousness*, *imperviousness and gross parcel area*, and *gross area with modifying factors.* Each methodology is evaluated against the criteria listed above and the findings are provided following this summary.

Preliminary Recommendation for Rate Methodology: The primary methodology for allocation of costs recommended is "imperviousness" on the property with a secondary factor of the gross parcel area. Imperviousness has been evaluated and identified as the key contributor to demand for services in stormwater, whether it is for routine drainage, flood controls, public safety, or water quality. There exists a strong body of research detailing the correlation between the development of a parcel and the impacts of that development on the drainage system and the overall services to be provided by local governments throughout the nation. It is recommended that gross area be included as a secondary rate factor to address those services that must be provided regardless of the presence of imperviousness and that should be fairly borne by all properties within the County. This increases the equity of the rate methodology, not limiting it to only land that has been disturbed and by taking into account the total lot size along with the amount of imperviousness.

Modifying Factors: Many modifying factors were considered in the development of the rate structure preliminary recommendation. These includes such items as *water quality impact factor*, *service charge credits*, *watershed surcharges*, *base rate for fixed costs*, and *varying approaches to single family residential properties*. Upon completion of the evaluation for Fairfax, the modifying factors of service charge credits and a tiered single family detached-housing rate structure are recommended. Service charge credits provide an opportunity for the County to recognize contributions made by private investment in the drainage system and in water quality protection that reduce the demand for service. A tiered single family residential rate structure also increases the equity by recognizing the varying amount of imperviousness present within this relatively homogenous land use activity. The County should consider whether it wants to place a limit on the number of billing units to be charged single family detached residential, which often occurs in the initial establishment of stormwater utility rates.

Preliminary Recommendation on Rate Modifiers: Combining a primary methodology of imperviousness and gross parcel area with the modifying factors of a multi-tiered residential rate with service charge credits will provide the County will an equitable basis of cost allocation that is legally defendable, that can be understood by the general public through a targeted education program, and that will be administratively manageable. Over time the County may choose to refine the rate structure to include additional elements of watershed surcharges, water quality impact factors, and a base rate for fixed costs. These additional factors can refine the equity of cost allocation but are not critical in the short term to effectively establish a stormwater user-fee funding strategy. These additional factors often require more detailed program cost tracking and administrative overhead to ensure fair allocation of costs occur.

4 Estimated Rate

Estimated Rate Based on Imperviousness ONLY: Upon completion of the program evaluation and analysis of the projected service enhancements to begin to build a proactive

stormwater program, an analysis of potential rates was undertaken. The approach to estimating a rate was to use Imperviousness only as the rate methodology. This was done due to constraints on data availability. AMEC utilized the data available from the Department of Tax Administration, the data analysis utilized in the 1997 rate evaluation, and existing GIS data provided by the County. Should the Board of Supervisors choose to pursue the implementation of a user-fee as the primary funding method for the program, an update of the planametric data on imperviousness needs to be undertaken. It is estimated that an update will cost $1,750,000. Once completed, annually the County should adopt a process to ensure that the data is current.

Basic assumptions regarding fund balance, level of other incomes such as the use of Pro Rata Share and fees for regulatory inspections, debt service and credit initiatives were made based on input from County staff. If the Board moves forward with this effort, these key policies will be finalized in a policy statement and factored into a final rate analysis.

4.1 Level of Service

A critical component of rate analysis is the cost of services to be provided. The program drives the policy regarding rate structure, rate base and rate factors. Within the establishment of the cost of service, the level of service (or the quantity, mix and phasing of program elements) must be established to address priorities or goals of the program. Over the past six months, the County and the consultant team have worked with a Citizen Advisory Committee to prioritize the program initiatives that will address the challenges in watershed plan implementation, long-term system operation, regulatory compliance, and program management. The following program categories (program matrix) were used to defined the effort necessary to shift the program to a more comprehensive approach in management of the drainage system and in environmental protection.

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Engineering and Design

- Design Criteria, Standards and Guidance
- Design, Field and Operations Engineering
- Maintenance and Field Engineering Support
- Hazard Mitigation Planning
- Dam Safety Program
- Retrofitting Program
- Flood Insurance Program
- Community Rating System
- Code Development and Zoning Support Services
- GIS, Mapping and Database Management
- Public Education/Outreach
- Infrastructure Management Planning

Operations and Maintenance

- General Maintenance Management
- SW Management Facilities Maintenance
- Conveyance System Maintenance
- General Remedial Maintenance
- Emergency Response Maintenance
- Infrastructure Management Program

- GASB 34
- Field Data Collection
- Public Drainage System Inspection/ Regulation
- Private Facilities Inspection and Regulation
- Public Assistance and Complaint Response

Plan Review and Erosion Control

- General Code Development and Review
- Stormwater Systems Inspection -New Dev
- Regulatory Enforcement
- General Permit Administration
- Erosion and Sediment Control Program

Capital Construction

- New System and SWF Upgrade Capital Improvements
- Construction Project Management
- Inspections
- Conveyance System Rehabilitation
- Contracted Survey Services
- Land, Easement, and ROW Acquisition

Watershed Management Planning

- Watershed Planning
- BMP Development
- Comprehensive Monitoring Program
- Stream Protection and Restoration
- BMP Programs and Activities
- Used Oil and Toxic Materials
- Spill Response and Clean Up
- Program for Public Education and Reporting
- Illicit or Cross Connections
- Illegal Dumping
- Multi-objective Planning and Support
- Zoning Support
- Landfills and Other Waste Facilities
- Emergency Response

General Expenses

- General Stormwater Program Administration
- Billing Operations
- HR Functions
- General Program Planning and Development
- Budget and Cost Controls
- Contract Management
- Interagency Cooperative Activities
- Cost and Rate Analysis
- Emergency/Disaster Management

The current resources for staff, operations and maintenance, capital construction, watershed planning, general expenses and regulatory compliance, using the FY 2005 budget, were assigned to address the functions identified above. For example, existing staff positions assigned to this program were reviewed to determine gaps in resources necessary to meet program objectives for the long-term. The process involved assigning available time in increments of 1 percent to the needs as defined using the program matrix. As this is an evaluation of resource demand and NOT a budget, the financial analysis is based on the position class within the County personnel classification system, set at a mid-range and fully burdened. This allows for the evaluation of the time demands and the total cost to the County for the services addressed by each staff position. The following represents a sample of the position review.

Fairfax County Stormwater Program Stormwater Cost of Service Analysis/Rate Model Cost of Service Analysis; Personnel Allocation (by title, costs fully-burdened)							Annual Inflation Rate
Year 1							
Major Cost Category	SWP Director S-34		Branch Chief - Planning (S 31)		Branch Chief - Projects (S-31)		
Cost Subcategory		$ 118,826.46		$ 106,483.79		$ 106,483.79	
Administration							
General Stormwater Program Administration	0.15	$ 17,823.97	0.10	$ 10,648.38	0.10	$ 10,648.38	
Billing Operations		$ -		$ -		$ -	
Legal Support Services		$ -		$ -		$ -	
HR Functions	0.05	$ 5,941.32	0.05	$ 5,324.19	0.05	$ 5,324.19	
General Program Planning and Development	0.05	$ 5,941.32	0.05	$ 5,324.19	0.05	$ 5,324.19	
Budget and Cost Controls	0.10	$ 11,882.65	0.05	$ 5,324.19	0.05	$ 5,324.19	
Contract Management		$ -		$ -		$ -	
Public Education/Outreach		$ -		$ -		$ -	
Interagency Cooperative Activities	0.05	$ 5,941.32	0.03	$ 3,194.51	0.03	$ 3,194.51	
GIS, Mapping and Database Management		$ -		$ -		$ -	
Indirect Cost Allocations		$ -		$ -		$ -	
Unspecified Overhead		$ -		$ -		$ -	
Cost and Rate Analysis		$ -		$ -		$ -	
Emergency/disaster Management	0.02	$ 2,376.53		$ -		$ -	
Subtotal:	0.42	$ 49,907.11	0.28	$ 29,815.46	0.28	$ 29,815.46	
Engineering and Design							
Design Criteria, Standards and Guidance	0.05	$ 5,941.32	0.03	$ 3,194.51	0.10	$ 10,648.38	
Design, Field and Operations Engineering		$ -		$ -	0.05	$ 5,324.19	
Maintenance and Field Engineering Support		$ -		$ -		$ -	
Hazard Mitigation Planning		$ -	0.03	$ 3,194.51		$ -	
Dam Safety Program	0.02	$ 2,376.53	0.02	$ 2,129.68		$ -	
Retrofitting Program		$ -		$ -		$ -	
Flood Insurance Program		$ -	0.01	$ 1,064.84		$ -	
Community Rating System		$ -	0.01	$ 1,064.84		$ -	
Code Development and Zoning Support Services	0.05	$ 5,941.32	0.02	$ 2,129.68		$ -	
Infrastructure Management Planning	0.05	$ 5,941.32	0.02	$ 2,129.68		$ -	
Subtotal:	0.17	$ 20,200.50	0.14	$ 14,907.73	0.15	$ 15,972.57	

In addition, existing direct costs such as equipment, supplies and capital contracts were also allocated using the program matrix on the basis of how to use these resources to meet the goals; NOT how they are currently used but how they can be used to meet the defined needs of the County. This process identifies the gaps in direct costs needed to address the program goals and objectives. The projection of new resources is based on using the existing resources as effectively as possible to address long-term priorities.

4.2 Proposed Level of Service

Development of the recommended level of service was completed by taking input on priorities from the Citizens Advisory Committee and staff and identifying program components needs to address them. The next step was to compare the existing resources available to address the program components, and to evaluate new resources necessary to fill gaps in service capability. The new plus existing resources defines the total service resources to accomplish the program goals.

The major priorities to be accomplished in the recommended level of service include the following, by program area:

Engineering and Design

1. Expand the floodplain management program including management of the dams operated and maintained by the County to meet all regulatory requirements. This is a critical initiative to ensure that floodplains are protected and that the County's liability for the management of dams, including state regulated dams is minimized.
2. Maintain the stream assessment program, including databases and GIS tools, and continue on-going analysis. This program is important in the process of Watershed Planning and will be used in evaluating the success of various projects/best management practices implemented from the Watershed Plans.
3. Expand existing efforts in public education, including establishing a permanent full-time position for stormwater communications, program-wide, not just focused on planning but on all areas of stormwater management (maintenance, regulatory and permit compliance, Best Management Practice (BMP) implementation, volunteerism, etc.).
4. Design and implement projects identified in Watershed Plans; projects to address major system retrofits; dam improvements; and other projects established in the Capital Improvement Program.
5. Increase support for construction management and land acquisition activities necessary to respond to an increase in capital construction, ensuring that projects will be implemented in a timely manner. All areas of construction management must be addressed to ensure that projects will not be delayed due to limited capability in easement and property acquisition as well as construction oversight and inspection.

Operations and Maintenance

1. Complete an assessment of the existing drainage system, including the interconnections with privately owned facilities. This includes the inventory and assessment of those private facilities to evaluate the role of the County in their on-going operations and maintenance. Future goals of the program may include County maintenance of privately owned facilities.
2. Enhance the level of service for facilities maintenance through a growth in the mowing program, both in-house capabilities and through contracted services.
3. Create an easement inventory for access to the stormwater drainage system and identify deficiencies. This will serve to improve efficiencies in maintaining the overall system and is important in the evaluation of County maintenance policy regarding privately owned facilities.
4. Implement programs to address compliance under the MS4 permit. These programs include sweeping of County-owned properties (driveways and parking), contracted inspection of hazardous material storage facilities, and signing watersheds for public education.
5. Inspect privately owned facilities to determine current conditions and functionality, utilizing contracted services. This will be used to assist owners through guidance on steps necessary to maintain and sustain performance.
6. Enhance maintenance capability for the closed, underground system by utilizing technology for inspection of the system. This will provide data necessary to prioritize investment in system rehabilitation as well as provide on-going data for update of the system inventory.

7. Enhance response time for addressing routine maintenance and customer assistance, shifting the maintenance services from a reactive, high priority-only service to a program that will address routine as well as high hazard conditions within the drainage system.

Regulatory Assistance, Inspection and Plan Review

1. Provide technical assistance to private owners of stormwater facilities. As a first step in achieving, at a minimum, the original design performance for the facility, the County will provide guidance on maintenance techniques and processes, including education on responsibility of the owner for the system.
2. Increase the County's inspection capability for construction oversight as the County adopts new standards for facility design to incorporate Low Impact Development best management practices. Ensuring that the BMPs are constructed and maintained to effectively contribute to improved water quality is critical. A key role for this activity is to educate, both the contractor community and the owners of the LIDs.
3. Increase the resources for Plans Review to address the change in workload due to LID impacts in development standards and to increase the efficiency of current resources, giving a high level of service to the development community.
4. Increase the resources in MSMD for inspection of the drainage system, improving the level of service from the current ability to inspect portions of the system once every five years to once every three years. This is critical for maintenance oversight of the LID facilities to ensure that they are functioning as designed.

General Administration

1. Address coordination of the overall program of services for stormwater management by creation of a Director of Stormwater who will be responsible for the oversight of the two Divisions and for interdivisional coordination of the full program of services. Coordinated leadership is critical as the program of services expand over time. This position should report to the Public Works Director and provide overall vision and direction for the program.
2. Increase accountability for resources and for contracting activities in both Divisions for effective delivery of services. Increased effectiveness of the technical and professional staff of the Divisions can be achieved by consolidating management functions for budgeting, contracting, purchasing, administrative support, and systems operation (data management). This requires both reorganization of the current staff and increases in staff to address account management, program and systems assessment, increased contracting activities and routine administrative support.
3. Provide sufficient resources to the Department of Tax Administration to support their role in billing and collecting user-fees. The stormwater program will purchase assistance from the DTA and should pay its "fair share" of the burden for this Department in billing, collecting, and accounting for the stormwater fees.
4. Contribute sufficient resources to the County's General Fund as compensation for utilization of general overhead services such as Human Resources, Management and Budget, County Attorney, County Executive and Facilities Management. Often organizations utilize an indirect cost allocation for enterprise operations to support the cost to the General Fund for these important services in

support of the program. The County needs to determine whether the Stormwater Utility will be responsible for this charge. It is currently calculated on the basis of 15.61% of the salary budget for the program. This can be as much as $11.5 million dollars over the first five years of the utility financing.

Performance Objectives – Level of Service

The following major program area performance objectives were used to evaluate the resources necessary to accomplish the priorities of the stormwater program.

- Bring all dams that are owned or operated by the County into full regulatory compliance within 24 months, addressing high-risk sites first. Maintain the integrity of the structures routinely, investing as necessary in rehabilitation of the dam.

- Maintain all necessary data in support of the floodplain management program and partner with FEMA to update the County floodplain maps within the first 36 months of the expanded program. Evaluate the Community Rating System program and determine an appropriate role for the County in support of this effort and implement strategies as needed.

- Provide annual, on-going support to the County Geographic Information System staff to bring the data layers that are important to the stormwater program up to date and to keep them current. This includes the update of the planametric data on imperviousness as well as other databases on the drainage infrastructure, floodplains, stormwater management facilities, etc.

- Establish a full-time dedicated position to public education on all elements of the stormwater program and services provided by the County. Expand the public education program to reach all citizens and businesses over the next five years, addressing cultural and language issues as necessary.

- Initiate the update of all Watershed Plans no later than July 2007 with the goal of completion by July 2008.

- Initiate changes in the level of service for the operations and maintenance of the County owned or operated drainage system components, to move from a “high-risk only” response capability to resolving all requests for service from the community, service needs identified by routine inspection, and emergency service issues within 12 months of receipt. This may result in projects shifting to the capital improvement program at which time they would be prioritized within the overall CIP program. It is anticipated that this level of service could be achieved within the first five years of the expanded program.

- Sustain the investment in the CIP at no less than 40% of the overall stormwater program budget the next 20 years.

- Initiate and/or maintain a program of services that will meet the requirements of the MS4 permit on an annual basis. This includes a review of the permit in FY

2006 to position the County for the renegotiation of this permit in the first quarter of FY 2007.

- Incorporate Low Impact Development strategies, after evaluation of specific BMPs, into the PFM, beginning in FY 2006 and as technology changes; and maintain an assessment protocol to determine functionality, long-term maintenance requirements, education initiatives and needed improvements. This includes inspection and testing of the LID practices over time to ensure that the County can evaluate their performance and identify changes needed.

- Complete an assessment of the existing drainage infrastructure under County ownership and/or operation, including the underground system by FY 2010 and evaluate the impact of County operation of all stormwater management facilities, including LID practices.

4.3 Cost of Service

The level of service defined by the objectives identified above is translated into a projection of resources necessary to achieve these outcomes or initiate the steps necessary to achieve these outcomes over time. A number of assumptions have been made in order to define the cost of these services. In addition, several financial parameters and standards were used based on input from the Department of Management and Budget.

Assumptions and Financial Parameters:

1. Current staff resources are valued by the classification of the position and not on the basis of the salaries of the individuals holding the position today. This is done in recognition that turnover will occur and this is done to protect the confidential nature of this data. Personal services are set at mid-range for the grade assigned to the duties.
2. Personnel resources are escalated at a rate of 3.7% based on data from DMB.
3. Personnel resources are fully burdened to account for the supporting costs that address insurance, payroll taxes, retirement, etc.
4. If a change in program or level of service is not anticipated, and a program is maintained constant over the planning period, the cost of service is escalated three (3) percent annually to account for normal increases in cost of operation.
5. To determine the level of expenditure necessary to carry out new program initiative such as construction inspection, capital project design, reduced response time to address maintenance requests, and increased watershed planning efforts, service costs are based on the use of internal staff to accomplish its goals. This is NOT a recommendation but a method to place a value the cost of service. Increase in personnel staffing is a policy decision of the Board and should be addressed in the normal annual budget process. Many services can be out-sourced and public-private partnerships can be very effective in instituting a change in level of service.
6. Resources address total County needs not just the needs of the Stormwater Planning Division or the Maintenance and Stormwater Management Division. Needs for right-of-way acquisition, construction inspection, and billing management are included regardless of organizational assignment of the responsibility.

7. The program enhancements will be initiated in Fiscal Year 2006.
8. Cost assumptions:
    - Computers are on a three-year replacement schedule.
    - Heavy equipment will be amortized on a 10 year replacement schedule.
    - Cost for supplies, training, safety equipment, telephones, etc. are projected on the basis of $3K per employee, based on average expenditures in the past.

Billing Issues – Impact on Implementation Schedule

The evaluation of the opportunities for billing a service fee for stormwater management identified two critical issues: the data necessary to assign costs to an individual property and the sequencing of billing the fee through the real estate tax billing process. The data necessary to equitably allocate costs with certainty to each property, regardless of land use, is not current. The planametric data necessary to evaluate the imperviousness to assign a fee has not been kept current. It is necessary to update this data prior to creation of a master account file. In addition, the schedule for real estate tax billing for Fiscal Year 2006 has the account finalization occurring in the spring of 2005. No account file for stormwater can be created in time for billing in for FY 2006.

NOTE: If the stormwater program is to be enhanced in FY 2006 as assumed, it will have to occur using General Fund resources with the user or service fee initiated in FY 2007, shifting the current budget for stormwater as well as the enhanced budget to the fee as its primary resource. This will allow for time to create the data necessary to build the master account file and integrate the file as well as establish procedures for maintaining the billing operation. Due to these issues, ***the Cost of Service planning horizon is 6 years, with the first year funded primarily by the General Fund and all future years primarily funded with the fees from the utility.***

Cost Projections

The following costs are presented by functional area for the six year planning period. The first year includes costs to create the master account file through an update of the planametric data on imperviousness and the evaluation of each parcel to assign the appropriate fees. Costs include both new initiatives and existing resources. This is NOT a budget but an evaluation of the resource demand projected to achieve the service level objectives.

The total summary of the cost of service is presented in two tables, Table 4-1 representing the category of cost based on typical types of expenditures:

Personnel
Supplies
Services
Capital Expenditures

These categories represent the nature or the type of resource. Again, it is important to recognize that "personnel" does not define whether these are staff resources or contracted resources.

The second cost summary (Table 4-2) represents the cost of service by program functions identified above. This summary includes all new program elements and current budgeted resources.

Table 4-1 Cost of Service by Type of Expenditure

Fairfax County Stormwater Program
Stormwater Cost of Service Analysis/Rate Model
Cost of Service Analysis Summary

Consolidated Costs by Category	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personnel	$ 9,146,648	$ 11,416,397	$ 13,038,231	$ 15,385,544	$ 16,586,991	$ 17,200,710
Supplies	$ 2,515,245	$ 2,747,292	$ 2,688,394	$ 3,806,517	$ 3,446,424	$ 3,265,975
Services	$ 5,681,141	$ 6,532,367	$ 7,088,826	$ 7,621,649	$ 8,090,576	$ 7,622,889
Capital Expenditures	$ 14,858,000	$ 15,470,000	$ 18,070,000	$ 18,650,000	$ 18,650,000	$ 23,650,000
Total	$ 32,201,034	$ 36,166,056	$ 40,885,451	$ 45,463,710	$ 46,773,991	$ 51,739,574

Costs by Function	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
General Expenses						
Personnel	$ 849,668	$ 791,716	$ 821,010	$ 883,151	$ 915,828	$ 949,714
Supplies	$ 422,120	$ 433,120	$ 425,120	$ 433,120	$ 427,120	$ 408,120
Services	$ 258,175	$ 2,040,275	$ 2,293,443	$ 2,822,858	$ 2,823,404	$ 2,919,206
Capital Expenditures						
Subtotal	$ 1,529,963	$ 3,265,111	$ 3,539,573	$ 4,139,130	$ 4,166,352	$ 4,277,039
Engineering and Design						
Personnel	$ 690,369	$ 832,923	$ 1,187,674	$ 1,266,870	$ 1,395,364	$ 1,446,992
Supplies	$ -	$ -	$ 19,440	$ 3,600	$ 19,560	$ 13,500
Services	$ 2,688,000	$ 1,638,000	$ 1,560,960	$ 1,500,400	$ 1,511,040	$ 1,507,000
Capital Expenditures		$ -	$ -	$ -	$ -	$ -
Subtotal	$ 3,378,369	$ 2,470,923	$ 2,768,074	$ 2,770,870	$ 2,925,964	$ 2,967,492
Operations and Maintenance						
Personnel	$ 4,907,403	$ 5,999,495	$ 6,594,218	$ 7,941,866	$ 8,432,555	$ 8,744,559
Supplies	$ 1,853,825	$ 1,954,786	$ 1,960,659	$ 2,949,611	$ 2,645,594	$ 2,531,855
Services	$ 850,000	$ 810,000	$ 810,000	$ 860,000	$ 860,000	$ 260,000
Capital Expenditures	$ 1,600,000	$ 3,000,000	$ 5,000,000	$ 7,500,000	$ 7,500,000	$ 10,000,000
Subtotal	$ 9,211,229	$ 11,764,281	$ 14,364,877	$ 19,251,477	$ 19,438,149	$ 21,536,414
Plan Review and Erosion Control						
Personnel	$ 194,717	$ 415,353	$ 492,139	$ 635,639	$ 779,541	$ 808,384
Supplies	$ -	$ 151,886	$ 61,575	$ 182,386	$ 137,650	$ 93,500
Services	$ 1,203,416	$ 1,246,093	$ 1,290,348	$ 1,336,241	$ 1,383,832	$ 1,433,184
Capital Expenditures		$ -	$ -	$ -	$ -	
Subtotal	$ 1,398,133	$ 1,813,331	$ 1,844,062	$ 2,154,266	$ 2,301,023	$ 2,335,067
Construction Services						
Personnel	$ 894,904	$ 1,752,331	$ 2,199,370	$ 2,784,576	$ 3,120,945	$ 3,236,420
Supplies						
Services	$ 356,550	$ 648,000	$ 984,075	$ 952,150	$ 1,362,300	$ 1,403,500
Capital Expenditures	$ 8,958,000	$ 9,170,000	$ 13,070,000	$ 11,150,000	$ 11,150,000	$ 13,650,000
Subtotal	$ 10,209,454	$ 11,570,331	$ 16,253,445	$ 14,886,726	$ 15,633,245	$ 18,289,920
Watershed Management Planning						
Personnel	$ 1,609,587	$ 1,624,579	$ 1,743,820	$ 1,873,441	$ 1,942,759	$ 2,014,641
Supplies	$ 239,300	$ 207,500	$ 221,600	$ 237,800	$ 216,500	$ 219,000
Services	$ 325,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 100,000
Capital Expenditures	$ 4,300,000	$ 3,300,000		$ -	$ -	$ -
Subtotal	$ 6,473,887	$ 5,282,079	$ 2,115,420	$ 2,261,241	$ 2,309,259	$ 2,333,641

Table 4-2 Cost of Service by Program Function

Fairfax County Stormwater Program Stormwater Cost of Service Analysis/Rate Model Cost of Service Analysis; All Costs, Summary by Cost Subcategory by Year						
Major Cost Category	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Cost Subcategory						
General Expenses						
General Stormwater Program Administration	$ 540,801	$ 567,864	$ 567,069	$ 582,542	$ 584,290	$ 573,325
Billing Operations	$ 146,879	$ 194,439	$ 197,933	$ 212,144	$ 216,294	$ 220,597
HR Functions	$ 124,280	$ 125,034	$ 128,772	$ 120,649	$ 112,669	$ 116,838
General Program Planning and Development	$ 134,367	$ 98,332	$ 101,970	$ 116,331	$ 120,635	$ 125,099
Budget and Cost Controls	$ 298,909	$ 209,361	$ 212,143	$ 225,616	$ 228,999	$ 232,507
Contract Management	$ 209,270	$ 212,525	$ 220,389	$ 228,543	$ 236,999	$ 245,768
Interagency Cooperative Activities						
Indirect Cost Allocations	$ -	$ 1,782,100	$ 2,035,268	$ 2,401,683	$ 2,589,229	$ 2,685,031
Cost and Rate Analysis	$ 3,624	$ 3,624	$ 3,758	$ 178,897	$ 4,042	$ 4,191
Emergency/disaster Management	$ 71,832	$ 71,832	$ 72,270	$ 72,724	$ 73,195	$ 73,683
Subtotal	$ 1,529,963	$ 3,265,111	$ 3,539,573	$ 4,139,130	$ 4,166,352	$ 4,277,039
Engineering and Design						
Design Criteria, Standards and Guidance	$ 47,191	$ 92,995	$ 96,436	$ 142,357	$ 147,624	$ 153,086
Design, Field and Operations Engineering	$ 667,915	$ 744,324	$ 750,219	$ 756,332	$ 762,671	$ 769,245
Maintenance and Field Engineering Support	$ 17,120	$ 17,120	$ 30,713	$ 20,810	$ 32,131	$ 28,798
Hazard Mitigation Planning	$ 23,152	$ 23,152	$ 84,247	$ 85,136	$ 25,818	$ 26,773
Dam Safety Program	$ 182,506	$ 182,506	$ 255,872	$ 247,714	$ 293,621	$ 293,376
Retrofiting Program	$ 4,530	$ 4,530	$ 83,934	$ 82,168	$ 85,208	$ 88,360
Flood Insurance Program	$ 8,623	$ 8,623	$ 55,582	$ 52,119	$ 81,173	$ 81,916
Community Rating System	$ 7,836	$ 7,836	$ 48,286	$ 50,072	$ 73,776	$ 76,506
Code Development and Zoning Support Services	$ 50,170	$ 84,245	$ 131,262	$ 136,118	$ 208,764	$ 216,488
GIS, Mapping and Database Management	$ 1,990,585	$ 737,602	$ 746,393	$ 755,509	$ 764,963	$ 774,767
Public Education/Outreach	$ 216,254	$ 205,504	$ 209,407	$ 213,456	$ 217,653	$ 222,007
Infrastructure Management Planning	$ 67,061	$ 267,061	$ 179,542	$ 132,115	$ 134,783	$ 137,550
Subtotal:	$ 3,378,369	$ 2,470,923	$ 2,768,074	$ 2,770,870	$ 2,925,964	$ 2,967,492
Operations and Maintenance						
General Maintenance Management	$ 439,234	$ 839,318	$ 921,190	$ 1,489,515	$ 1,514,407	$ 1,530,887
SW Management Facilities Maintenance	$ 987,593	$ 987,593	$ 806,131	$ 1,391,115	$ 1,109,266	$ 1,139,144
Conveyance System Maintenance	$ 1,558,341	$ 2,058,379	$ 2,199,669	$ 2,352,594	$ 2,452,485	$ 2,423,685
General Remedial Maintenance	$ 1,745,118	$ 1,961,640	$ 2,316,651	$ 3,190,852	$ 3,307,893	$ 3,388,920
Emergency Response Maintenance	$ 163,066	$ 163,066	$ 169,100	$ 175,357	$ 181,845	$ 188,573
Infrastructure Management Program	$ 1,453,374	$ 1,453,374	$ 1,500,489	$ 1,549,347	$ 1,600,013	$ 1,472,553
GASB 34	$ 234,598	$ 234,598	$ 236,618	$ 238,713	$ 240,885	$ 63,138
Field Data Collection	$ 383,972	$ 383,972	$ 515,211	$ 525,394	$ 671,356	$ 447,316
Public Drainage System Inspection and Regulation	$ 197,827	$ 197,827	$ 205,147	$ 212,737	$ 220,608	$ 228,771
Private Facilities Inspection and Regulation	$ 392,536	$ 428,944	$ 437,045	$ 566,096	$ 577,421	$ 589,166
Public Assistance and Complaint Response	$ 55,570	$ 55,570	$ 57,626	$ 59,758	$ 61,969	$ 64,262
Subtotal:	$ 7,611,229	$ 8,764,281	$ 9,364,877	$ 11,751,477	$ 11,938,149	$ 11,536,414
Plan Review and Erosion Control						
General Code Development and Review	$ 87,470	$ 239,052	$ 223,494	$ 265,451	$ 284,832	$ 255,222
Stormwater Systems Insp. - New Development	$ 58,059	$ 278,998	$ 279,212	$ 499,679	$ 577,506	$ 589,780
Regulatory Enforcement	$ 87,228	$ 87,228	$ 88,605	$ 90,034	$ 91,515	$ 93,051
General Permit Administration	$ 6,636	$ 6,636	$ 6,881	$ 7,136	$ 7,400	$ 7,674
Erosion and Sediment Control Program	$ 1,158,740	$ 1,201,417	$ 1,245,869	$ 1,291,966	$ 1,339,769	$ 1,389,341
Subtotal:	$ 1,398,133	$ 1,813,331	$ 1,844,062	$ 2,154,266	$ 2,301,023	$ 2,335,067
Construction Services						
Capital Improvements	$ 7,955,966	$ 8,871,836	$ 12,971,891	$ 10,596,751	$ 10,622,531	$ 13,149,264
Construction Project Management	$ 506,584	$ 972,425	$ 1,278,537	$ 1,490,323	$ 1,897,474	$ 1,873,128
Inspections	$ 55,093	$ 201,451	$ 255,893	$ 369,225	$ 382,886	$ 397,053
Conveyance System Rehabilitation	$ 1,885,470	$ 3,296,032	$ 5,306,986	$ 8,070,940	$ 8,092,065	$ 10,613,971
Contracted Survey Services	$ 155,600	$ 168,000	$ 369,000	$ 297,000	$ 396,000	$ 496,000
Land, Easement, and ROW Acquisition	$ 1,250,742	$ 1,060,587	$ 1,071,338	$ 1,562,488	$ 1,742,290	$ 1,760,504
Subtotal:	$ 11,809,454	$ 14,570,331	$ 21,253,445	$ 22,386,726	$ 23,133,245	$ 28,289,920
Watershed Management Planning						
Watershed Planning	$ 4,917,552	$ 3,927,297	$ 688,942	$ 756,748	$ 784,748	$ 813,784
BMP Development	$ 225,662	$ 227,911	$ 245,213	$ 264,051	$ 273,821	$ 283,952
Comprehensive Monitoring Program	$ 375,902	$ 369,542	$ 378,876	$ 388,870	$ 391,615	$ 399,378
Stream Protection and Restoration	$ 147,114	$ 143,843	$ 157,096	$ 171,673	$ 174,565	$ 181,252
BMP Programs and Activities	$ 159,509	$ 156,238	$ 169,950	$ 185,002	$ 188,387	$ 195,586
Used Oil and Toxic Materials	$ 39,741	$ 39,741	$ 41,211	$ 42,736	$ 44,317	$ 45,957
Spill Response and Clean Up	$ 29,512	$ 29,512	$ 30,604	$ 31,736	$ 32,910	$ 34,128
Program for Public Education and Reporting	$ 315,266	$ 140,266	$ 141,755	$ 143,300	$ 144,902	$ 146,564
Illicit or Cross Connections	$ 38,319	$ 38,319	$ 39,737	$ 41,207	$ 42,731	$ 44,312
Illegal Dumping	$ 78,169	$ 78,169	$ 79,211	$ 80,292	$ 81,412	$ 32,575
Multi-objective Planning and Support	$ 72,167	$ 62,627	$ 68,980	$ 76,042	$ 71,935	$ 75,052
Zoning Support	$ 32,009	$ 28,829	$ 31,241	$ 33,900	$ 32,847	$ 34,215
Landfills and Other Waste Facilities	$ 22,582	$ 22,582	$ 23,417	$ 24,284	$ 25,182	$ 26,114
Emergency Response	$ 20,385	$ 17,205	$ 19,187	$ 21,400	$ 19,884	$ 20,772
Subtotal:	$ 6,473,887	$ 5,282,079	$ 2,115,420	$ 2,261,241	$ 2,309,259	$ 2,333,641
TOTAL:	$ 32,201,034	$ 36,166,056	$ 40,885,451	$ 45,463,710	$ 46,773,991	$ 51,739,574

4.4 New Initiatives – Cost of Service

Fairfax County Stormwater Program

Stormwater Cost of Service Analysis/Rate Model - New Initiatives Only

Cost of Service Analysis; All Costs, Summary by Cost Subcategory by Year

Major Cost Category	2006	2007	2008	2009	2010	2011
Cost Subcategory						
General Expenses						
General Stormwater Program Administration	$ 93,618	$ 428,722	$ 422,779	$ 432,912	$ 429,125	$ 412,419
Billing Operations	$ 146,879	$ 194,439	$ 197,933	$ 212,144	$ 216,294	$ 220,597
HR Functions	$ 44,366	$ 125,034	$ 128,772	$ 120,649	$ 112,669	$ 116,838
General Program Planning and Development	$ 54,308	$ 98,332	$ 101,970	$ 116,331	$ 120,635	$ 125,099
Budget and Cost Controls	$ 13,577	$ 75,186	$ 77,968	$ 91,441	$ 94,824	$ 98,332
Contract Management	$ 87,983	$ 212,525	$ 220,389	$ 228,543	$ 236,999	$ 245,768
Interagency Cooperative Activities						
Indirect Cost Allocations	$ -	$ 679,847	$ 847,791	$ 1,148,406	$ 1,316,934	$ 1,365,661
Cost and Rate Analysis	$ -	$ 3,624	$ 3,758	$ 178,897	$ 4,042	$ 4,191
Emergency/disaster Management	$ -	$ 11,832	$ 12,270	$ 12,724	$ 13,195	$ 13,683
Subtotal	$ 440,730	$ 1,829,541	$ 2,013,630	$ 2,542,048	$ 2,544,717	$ 2,602,588
Engineering and Design						
Design Criteria, Standards and Guidance	$ -	$ 45,805	$ 47,499	$ 91,609	$ 147,624	$ 153,086
Design, Field and Operations Engineering	$ -	$ 76,408	$ 79,236	$ 82,167	$ 177,671	$ 184,245
Maintenance and Field Engineering Support	$ -	$ -	$ 12,960	$ 2,400	$ 13,040	$ 9,000
Hazard Mitigation Planning	$ -	$ -	$ 60,239	$ 62,468	$ 97,556	$ 101,165
Dam Safety Program	$ -	$ -	$ 73,199	$ 64,868	$ 110,596	$ 110,165
Retrofiting Program	$ -	$ -	$ 79,236	$ 82,168	$ 85,208	$ 88,360
Flood Insurance Program	$ -	$ -	$ 46,639	$ 42,845	$ 71,557	$ 71,944
Community Rating System	$ -	$ -	$ 40,159	$ 41,645	$ 65,037	$ 67,444
Code Development and Zoning Support Services	$ -	$ 76,408	$ 79,236	$ 82,167	$ 152,817	$ 158,471
GIS, Mapping and Database Management	$ 1,826,409	$ 567,350	$ 569,842	$ 572,427	$ 575,106	$ 577,885
Public Education/Outreach	$ 189,986	$ 179,236	$ 182,168	$ 185,208	$ 188,360	$ 191,630
Infrastructure Management Planning	$ -	$ 200,000	$ 110,000	$ 60,000	$ 60,000	$ 60,000
Subtotal:	$ 2,091,394	$ 1,240,633	$ 1,476,595	$ 1,466,937	$ 1,842,350	$ 1,872,016
Operations and Maintenance						
General Maintenance Management	$ 300,980	$ 701,064	$ 777,821	$ 1,340,841	$ 1,360,232	$ 1,371,008
SW Management Facilities Maintenance	$ 200,000	$ 200,000	$ -	$ 565,759	$ 263,975	$ 273,180
Conveyance System Maintenance	$ 30,075	$ 530,113	$ 625,459	$ 730,742	$ 781,227	$ 701,193
General Remedial Maintenance	$ 652,770	$ 869,292	$ 1,198,131	$ 2,045,191	$ 2,134,089	$ 2,185,929
Emergency Response Maintenance	$ -	$ -	$ -	$ -	$ -	$ -
Infrastructure Management Program	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ -
GASB 34	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ -
Field Data Collection	$ 240,000	$ 240,000	$ 365,913	$ 370,571	$ 510,805	$ 280,825
Public Drainage System Inspection and Regulation	$ -	$ -	$ -	$ -	$ -	$ -
Private Facilities Inspection and Regulation	$ 250,000	$ 286,408	$ 289,236	$ 412,817	$ 418,471	$ 424,335
Public Assistance and Complaint Response	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal:	$ 2,033,824	$ 3,186,877	$ 3,616,560	$ 5,825,922	$ 5,828,800	$ 5,236,470
Plan Review and Erosion Control						
General Code Development and Review	$ -	$ 151,583	$ 132,788	$ 171,389	$ 187,290	$ 154,070
Stormwater Systems Insp. - New Development	$ -	$ 220,939	$ 219,005	$ 437,244	$ 512,761	$ 522,639
Regulatory Enforcement	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
General Permit Administration	$ -	$ -	$ -	$ -	$ -	$ -
Erosion and Sediment Control Program	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal:	$ 50,000	$ 422,522	$ 401,793	$ 658,633	$ 750,051	$ 726,709
Construction Services						
Capital Improvements	$ 7,955,966	$ 8,582,476	$ 12,583,842	$ 10,194,344	$ 10,205,235	$ 12,716,529
Construction Project Management	$ 506,584	$ 876,178	$ 1,025,911	$ 1,081,187	$ 1,408,101	$ 1,365,647
Inspections	$ 55,093	$ 114,263	$ 165,280	$ 275,466	$ 285,659	$ 296,228
Conveyance System Rehabilitation	$ 1,885,470	$ 3,296,032	$ 5,306,986	$ 8,070,940	$ 8,092,065	$ 10,613,971
Contracted Survey Services	$ 155,600	$ 168,000	$ 369,000	$ 297,000	$ 396,000	$ 496,000
Land, Easement, and ROW Acquisition	$ 1,250,742	$ 993,608	$ 1,001,882	$ 1,490,461	$ 1,667,598	$ 1,683,049
Subtotal:	$ 11,809,454	$ 14,030,558	$ 20,452,900	$ 21,409,399	$ 22,054,657	$ 27,171,424
Watershed Management Planning						
Watershed Planning	$ 4,630,586	$ 3,640,331	$ 391,359	$ 448,154	$ 464,736	$ 481,931
BMP Development	$ 76,289	$ 78,538	$ 90,314	$ 103,420	$ 107,247	$ 111,215
Comprehensive Monitoring Program	$ 9,860	$ 3,500	$ 6,320	$ 9,560	$ 5,300	$ 5,800
Stream Protection and Restoration	$ 58,254	$ 54,984	$ 64,949	$ 76,117	$ 75,473	$ 78,493
BMP Programs and Activities	$ 58,254	$ 54,984	$ 64,949	$ 76,117	$ 75,473	$ 78,493
Used Oil and Toxic Materials	$ -	$ -	$ -	$ -	$ -	$ -
Spill Response and Clean Up	$ -	$ -	$ -	$ -	$ -	$ -
Program for Public Education and Reporting	$ 275,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Illicit or Cross Connections	$ -	$ -	$ -	$ -	$ -	$ -
Illegal Dumping	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ -
Multi-objective Planning and Support	$ 14,790	$ 5,250	$ 9,480	$ 14,340	$ 7,950	$ 8,700
Zoning Support	$ 4,930	$ 1,750	$ 3,160	$ 4,780	$ 2,650	$ 2,900
Landfills and Other Waste Facilities	$ -	$ -	$ -	$ -	$ -	$ -
Emergency Response	$ 4,930	$ 1,750	$ 3,160	$ 4,780	$ 2,650	$ 2,900
Subtotal:	$ 5,182,894	$ 3,991,086	$ 783,690	$ 887,268	$ 891,478	$ 870,432
TOTAL:	$ 21,608,297	$ 24,701,217	$ 28,745,168	$ 32,790,206	$ 33,912,051	$ 38,479,639

4.5 Rate Analysis

Rate analysis is accomplished by translating the cost of service into a cash flow demand, taking into consideration other revenues that may be utilized to address the program and increased demand for cash to address bad debt, cash reserves, bond sales expenses, offsets and credits. In addition, the unit for billing the service fee has to be established so a "fee due" can be calculated for each property. To define a fee for the recommended program of services over the five year planning period, the consultant utilized the data analysis completed in 1997, making the assumption that the "average" imperviousness by land use category (i.e., commercial, industrial, single family residential, townhomes, apartments, condos) is consistent over time. The current real estate database provides the information necessary for determining the number of parcels per land use (in 2004).

The average imperviousness for single family residential property utilized in the analysis is **3398 square feet**. This is used as the rate unit for analysis of billing units for all other property land use categories. The total number of billing units is 442,669 and is distributed as follows:

Land Use	Number of Billing Units	Percent of Total Units
Single Family Residential	172,339	39%
Multifamily Housing		
Apartments	12,175	3%
Townhomes	43,038	10%
Condos	9,812	2.5%
Mobile Homes	1,569	0.5%
Commercial	156,132	34%
Industrial	6,691	2%
Institutional	40,913	9.5%
Total Billing Units	**442,669**	

Properties owned by all governments has been excluded from this calculation including properties owned by the Fairfax School Board and the Fairfax Park Authority based on the enabling legislation for user-fee development. This is a conservative estimate for use in the rate analysis and results in an under-estimate the total billing units because the necessary data for an exact analysis from current conditions is not available.

Financial Factors Utilized in the Cash Flow Analysis:

- Interest earnings – 2 percent of annual cash flow
- Bad debt – 1 percent of annual cash generated by the fee
- Pro Rata appropriated funds – set at $5,400,000 annually
- Operating reserves – 10 percent of operational expense only
- Inflation rate on operating costs – 3 percent annually
- Credits – 2 percent of cash generated annually

- Growth rate for billing units – 2 percent annually

Cash Flow Analysis

The following table summarizes the cash flow analysis using the financial factors outlined above and based on the following assumptions:

- The rate will remain constant for two fiscal years, with adjustments in rates in FY 2009 and FY 2011.
- An update of the rate model will occur in FY 2010 to validate the program assumptions and to project the cash demands for the next five year period.

Fiscal Year	Rate per Billing Unit	
	Monthly	Annually
2007	6.46	77.52
2008	6.46	77.52
2009	7.40	88.80
2010	7.40	88.80
2011	7.95	95.40

Cash Flow Analysis

Fairfax County Stormwater Program **Stormwater Cost of Service Analysis/Rate Model** **Revenue/Expenditure (Cash Flow) Analysis**					
	Year 1	Year 2	Year 3	Year 4	Year 5
Expenses					
Annual Operating Expense	$ 21,002,285	$ 23,138,099	$ 27,190,839	$ 28,504,712	$ 28,448,907
Annual Capital Expense and Bonded Capital Expense	$ 15,470,000	$ 18,070,000	$ 18,650,000	$ 18,650,000	$ 23,650,000
Subtotal: with Inflation	$ 36,472,285	$ 41,971,656	$ 46,738,137	$ 48,095,368	$ 53,037,721
Bond Sale Costs and Debt Service	$ -	$ -	$ -		
Bond Debt Service Coverage	$ -	$ -	$ -	$ -	$ -
Operating Fund Balance and Emergency Reserve- Unappropriated	$ 2,100,228	$ 618,855	$ 131,387	$ (5,581)	$ 93,881
Total: Expenses	$ 38,572,513	$ 42,590,512	$ 46,869,524	$ 48,089,787	$ 53,131,602
Other Revenues					
Funds Carried Forward	$ -	$ 1,492,967	$ 44,370	$ 618,161	$ 845,450
Bond Sales Receipts and Associated Funds	$ -	$ -	$ -	$ -	$ -
Other Fees and Charges (Pro Rata	$ 5,400,000	$ 5,400,000	$ 5,400,000	$ 5,400,000	$ 5,400,000
Interest Income	$ 420,046	$ 462,762	$ 543,817	$ 570,094	$ 568,978
Recovered Delinquencies		$ 332,542	$ 388,550	$ 396,321	$ 434,292
Other Resources (Fees for E&S)	$ 956,874	$ 992,278	$ 1,028,993	$ 1,067,065	$ 1,106,547
Total: Other Revenues	$ 6,776,920	$ 8,680,550	$ 7,405,730	$ 8,051,642	$ 8,355,267
Service Fee Revenue Requirement	$ 31,795,594	$ 33,909,962	$ 39,463,795	$ 40,038,146	$ 44,776,335
Revenue Stream Reduction Allowances					
Delinquencies and Bad Debt	$ 343,181	$ 350,045	409,000	417,180	457,150
Offsets					
Credits	686,362	700,089	409,000	417,180	457,150
Total: Revenue Reduction Allowances	$ 1,029,543	$ 1,050,134	$ 817,999	$ 834,359	$ 914,300
Adjusted Service Fee Revenue Requirement	$ 32,825,137	$ 34,960,096	$ 40,281,794	$ 40,872,505	$ 45,690,635
Estimate of Service Fee Needed/Year					
Annualized ERU Revenue Requirement	$ 32,825,137	$ 34,960,096	$ 40,281,794	$ 40,872,505	$ 45,690,635
Number of ERU	442,700	451,554	460,585	469,797	479,193
Estimated Monthly Charge per ERU	$ 6.18	$ 6.45	$ 7.29	$ 7.25	$ 7.95
Service Fee Recommendation					
Recommended Monthly Charge per ERU	$ 6.46	$ 6.46	$ 7.40	$ 7.40	$ 7.95
Estimated Annual ERU Revenue	$ 34,318,104	$ 35,004,466	$ 40,899,955	$ 41,717,954	$ 45,714,985
Estimated Year-end Revenue Surplus (Deficit)	$ 1,492,967	$ 44,370	$ 618,161	$ 845,450	$ 24,351
Available Funds for Appropriation in Following Year	6.5%	0.2%	2.2%	3.0%	0.1%

Stormwater Management Program
Fairfax County Virginia
Recommended Program Elements for Year One (FY 2006)

Mission: The mission for the Stormwater Management Program is to develop and maintain comprehensive watershed and infrastructure management services to protect property, to promote health and safety, to enhance the quality of life, and to preserve and improve the environment for the benefit of the public.

To accomplish this mission, the Stormwater Management Program involves the design, construction, operation, maintenance and inspection of the storm drainage infrastructure. It includes performance of environmental assessments through coordinated stormwater and maintenance programs in compliance with all governmental regulations utilizing innovative techniques, customer feedback and program review. These services are carried out by County staff that is committed to service responsive and sensitive to the needs of the residents, customers and public partners.

Over the 2004 calendar year, the Maintenance and Stormwater Management Division and the Stormwater Planning Division assessed current objectives, resources and community expectations to identify a five-year strategy for expanding the services to address the goals and objectives identified within the Strategic Plan for Stormwater Management. These objectives are directly linked to the County's Strategic Plan and the Board of Supervisors priorities.

The following objectives have been established for FY 2006 and are the basis of the expanded level of service for the overall stormwater program.

Stormwater Program Management - Leadership

I.A. Management Services - Program Leadership: Regardless of the final decision of the Board of Supervisors regarding the appropriate funding approach to support the services in the long-term, it is recommended that the leadership of the comprehensive services provided by the County be under the direction of a Program Manager, responsible to the Public Works and Environmental Services Director. The resource requirements for the creation of this role are provided below as well as additional staff recommendations based on whether a user-fee is established. A new contract management position is also recommended, to support the increase in out-sourced services identified under other initiatives for 2006. Effectively managing the contracting/financial process will relieve the burden from operational staff that can be more efficient in carrying out their technical roles to meet all objectives.

Utilization of out-sourcing is a key component in effective delivery of services to the community. This role can be provided by a County staff position, by a contracted employee or by privatizing program management.

After Year One implementation, cost of utility administration (without the indirect cost allocation) is 4.1% percent of anticipated operating revenues. With the indirect cost allocation, a contribution made to the General Fund for services, the cost of utility administration is 9% and reduces over time as the program grows.

I. B. Management Services – Stormwater Utility Implementation

Implementation of the stormwater utility fee requires the County to have the operational ability to send out and collect a bill from owners of all properties included in the rate base. The data to support the amount of imperviousness on the property is insufficient. The County has not updated its GIS-based coverage of planametric data that is important in allocation of cost on an equitable basis. Planametric data provides the legal basis for the fee due for any individual property and provides the basis for assigning single family residential properties into a bill-rate category.

In concert with the challenges of the lack of data for equitable allocation of cost, the billing cycle for the Department of Tax Administration, the recommended billing agent for the utility, creates additional challenges. After extensive discussions with the staff of DTA, it is recommended that the target date for the first billing cycle be June 2006, for revenues to support FY 2007. It is recommended that FY 2006 costs for program expansion and utility implementation come from General Fund revenues. These revenues can be returned to the General Fund, through the rate structure, treating the FY 2006 expenditures as a “loan” from the General Fund. The County can create the Enterprise Fund for Stormwater in the FY 2006 budget, using GF transfers to cover the expenditures on an actual basis and could have a repayment to the General Fund of the cost of utility implementation once the revenues of the utility are in place, if desired.

Implementation costs for the utility include the following expenditures:

- Creation of the updated planametric data for imperviousness (projected at 35370 labor hours).

- Creation of the Master Account File based on new impervious data layer.
- Integration costs for DTA to add the bill for stormwater (system programming; data integration tests).
- Public education initiative.
- Temporary customer service support for initial billing cycle, including training and logistical support (i.e., telephones, training materials, office setups).

It is anticipated that the utility will generate approximately $34,000,000 in FY 2007. Implementation costs ($2,936,790) are 8.6% of the first year's revenue. **This resource expenditure is recovered in 5.13 days in the first billing cycle for FY 2007.**

Watershed Project Implementation

II. Capital Construction Program: Initiate new stormwater system improvements through design, easement/ROW acquisition and construction contract issuance for projects based on the completion of watershed plans for Little Hunting Creek, Popes Head Creek and other on-going initiatives.

Accelerated Watershed Planning

III. Accelerated Watershed Planning: Accelerate watershed planning process, initiating new studies through planning contracts in the amount of $2.8 million in 2006, in addition to the current funding request of $1.5 million. In FY 2007 the remaining planning projects would be initiated to ensure completion of all Plans by June 2008.

Public Education and Outreach

IV. Public Education and Outreach Program: Educate, continuously, the general public, business owners and stormwater management facility/BMP owners on stormwater management issues; their roles and responsibilities, the County's role and responsibility, with specific emphasis on facilities maintenance, pollution prevention and key MS4 permit, funding production of materials at $300,000 in FY 2006.

System Assessment and Private Facilities Technical Assistance

V. Maintenance Assessment Program: Establish a maintenance assessment program for conveyance and stormwater management facilities (publicly owned only), completing the GIS layer for system inventory and creating a database to be utilized in the infrastructure rehabilitation program. Total estimated project value is $3 million to be completed over a five year period, with the FY 2006 funding of $600,000.

VI. Private Stormwater Facility Technical Assistance Program: Enhance maintenance services for privately owned stormwater management facilities and best management practices by providing technical assistance, engineering consultation and facility assessment, using contracted services, initially funded at $200,000 annually.

Conveyance System Rehabilitation Program

VII. Conveyance System Rehabilitation: Initiate construction of replacement or repairs to the existing conveyance systems, through design, easement/ROW acquisition and construction contract. Current known backlog is 20 channels, 23 pipe replacements and approximately 200 failed dam projects. The initial investment of $1,600,000 in Year 2006 will be the first step.

Enhanced Maintenance Response for High Priority (High Hazard) Sites

VIII. High Priority Maintenance Needs: Correct safety-related high priority system maintenance problems identified through the assessment of the stormwater management system, utilizing a new in-house maintenance team with an annual cost of $475,000 in FY 2006.

Maintenance Operations – Contracted Services

IX. Public Education – Watershed Management: Fabricate and place signs at public stormwater facilities and at major roadway crossings to raise public awareness in watershed management issues. This is a one time project, at a cost of $175,000 in FY 2006 for contracted services to complete in one year, with routine inventory and sign maintenance under current role in MSMD.

X. VPDES Permit Compliance – Industrial and Commercial Facility Inspection: Ensure industrial and commercial facilities are in compliance with VPDES permit requirements for hazardous materials storage and disposal, through contracted services to assess 40 sites annually with funding in FY 2006 set at $50,000.

XI. VPDES Permit Compliance – System Maintenance: Using existing contractors, expand sweeping program to address parking and travelways located within 110 County-owned properties which will address one MS4 permit requirement, at an increased cost of $150,000 in FY 2006.

XII. House-flooding Reduction Program: Increase investment in A0002 projects by $100,000 annually to support in-house construction and/or contracted construction to reduce house-flooding incidents.

XIII. Dam Safety Program: Evaluate, create project plan and implement necessary improvements for 15 new state-regulated dams under County responsibility, using contracted services of CMD or MSMD annual contractors.

XIV. Easement Inventory: Inventory easements and create a GIS database identifying legal rights of access and maintenance agreements, as appropriate, on both public and privately owned stormwater management facilities, using contracted services resulting in an increase in efficiency in project management and implementation of construction projects. This is a one year activity at $400,000.

Engineering Design and BMP Development

XV. LID Tools: The County will complete its evaluation of Low Impact Development (LID) strategies over the planning period and initiate the first BMP strategies in FY 2006. The PFM will be updated as appropriate and education materials and tools will be developed to provide resources to the development community. An evaluation methodology will be developed to track the implementation and effectiveness of these BMPs.

XVI. MS4 Permit Renewal: The County will undertake an evaluation of the current BMPs in the existing MS4 VPDES permit and identify changes, new strategies, and new BMPs for renegotiation of the permit in calendar year 2006.

STORMWATER ADVISORY COMMITTEE
Discussion Paper on Credits – Updated

Background:

During the January 11, 2005 Committee meeting, the following discussions occurred regarding credits. The notes below are from the draft minutes of the meeting. The full minutes will be reviewed and approved at the February 8, 2005 meeting.

Utility Policies – Credits

The Committee discussed the use of credits in utility policy. Ms. Treadway noted that generally credit policy is established to recognize the value of a private investment to the overall County effort in managing stormwater. Credits are not automatically granted, nor are they granted in perpetuity. They must be applied for and the owner must provide documentation that the service or function is being provided and/or maintained. Credits can be taken away if a facility is not properly maintained.

Ms. Treadway asked the Committee to consider potential activities that would warrant a credit in Fairfax County. She noted that structural facilities with water quality and quantity controls, that reduced peak flows or that exceed current standards are typically awarded credits. She noted that credit policies are locally-driven, and there is no state legislature that specifies credit type.

Residential Property Participation: The group discussed whether or not residential properties should be eligible for credits. For example, in Reston and Lake Barcroft, all of the homeowners currently pay fees to maintain their stormwater system. Ms. Treadway stated that most credits consider the County-wide value of the stormwater facility, and do not differentiate between residential and non-residential properties. Therefore, residential properties can be eligible if they provide a qualifying service.

Credit Limits: It was noted that ratepayers seldom receive 100% credit; different percentages of the fee are dedicated to different countywide issues, such as stream restoration and resource inventory. All properties should pay a base amount to account for these expenditures.

Public Education: The Committee discussed providing credits for public education efforts by private entities. It was agreed that public education is worthy of credits; however the focus should be on activities that have tangible (*concrete!*) results, such as quality and quantity benefits.

Open Space: The Committee discussed if undisturbed open space should be given a credit. If "imperviousness" is the basis for the fee, then open space is automatically given credit, since it is not part of the rate base and would not

generate a fee. However, it was discussed whether the dedication of a conservation easement to ensure that the property would never be developed could be considered. Ms. Treadway indicated that it would entirely depend on whether the owner had a property, perhaps adjacent to the area dedicated, which was generating a fee so that the credit applied to another property. Credit policies are not set up to give money to non-rate payers.

Other Concepts: The Committee agreed that facilities that provide peak flow reductions, runoff velocity reductions, on-site detention, and that mimic pre-development hydrologic conditions should be credited.

I. GENERAL DISCUSSION - INTRODUCTION TO CREDITS

Credits in the Rate Structure

The use of stormwater utility methods for financing urban stormwater programs is growing rapidly in popularity in the United States. The rate structures of such utilities are becoming more complex as more and more counties and cities turn to this method for stormwater financing and more examples abound. All rate structures are made up of three components: a basic fee and rate methodology, secondary funding methods and rate modifiers.

Initial discussions on the rate methodology have identified the use of total impervious area as the primary basis for the charge and to incorporate several rate modifiers and secondary funding methods within the rate structure. Stormwater credits are a type of rate modifier.

Credits typically do not have a significant revenue reduction impact (estimated at 5 to 10 percent) but may have large potential in creating equity within the rate structure and, therefore, addressing potential resistance to the concept from fee payers who would qualify for a credit. There is a difference between a one-time credit (often termed an offset) and an ongoing credit.

The Basis for Charges

Stormwater utilities typically generate most of their revenue through "user" fees. "Use" of the drainage system is defined as the demand a property places on that system and the stormwater services provided which protect the property (such as flood plain management and water quality permit compliance). The demand a property places on a system can be measured in terms of peak flow of stormwater runoff generated by the property; in general the greater the flow the greater the demand, and thus the greater the user fee. Additional major considerations in determining the demand placed on stormwater systems and services are the total volume of stormwater discharged and the total loadings and intensity of pollutants discharged into the stormwater. There are other impacts of urban development including reduction in base flow, thermal impacts, faster peak arrival times, higher velocities, and so on. Credits should generally be given for an action or situation which reduces one or more of these impacts. The total cost of services should be evaluated to determine the breakdown by service area for the program to address these conditions or outcomes (i.e., peak flows, pollutant loading, flood plain management, water quality permit compliance). This information is useful in evaluating the appropriate percent reduction of any particular activity warranting a credit.

II. DIFFERENT BASES FOR CREDITS AND RECOMMENDATIONS

Introduction to Credit Basis

Credits are often granted to provide incentives to implement or carry out an overall community stormwater management plan or to advance some other social or environmental objective. It must be remembered that any user fee must have some basis for calculation and application. Theoretically, stormwater credits are granted for less demand placed on the system and/or an avoidance of expenditure needed by the County to address a service or capital investment.

Credits which have been used around the country and which result in reduced service charges have been based on a number of factors:

1. Certain activities which improve the system beyond normal expectations;
2. Certain on-going activities on the property which reduce impact;
3. Certain on-going activities on the property which reduce the utility's cost of service; and/or
4. Certain on-going activities that reduce the programmatic requirements of the utility.

A. Discussion Regarding "Classes of Payers"

Credits granted on the basis of a classification of ratepayers are not appropriate, generally on the basis of discriminatory impacts. Classification of payers typically is based on criteria such as the economic situation or status of the ratepayers. Although this may involve good social purpose or values, it has a technical and legal shortcoming in that economic criteria are not related to the reason the fee is established. Because it is a user fee, users must be treated equally under the legal authority for establishing the fee, in relation to the demand they generate for systems and services. To exempt or credit certain classes of persons for economic reasons, no matter what the need, on any basis other than reduction in cost of service or impact on the system violates the fundamental standard of the user fee basis of the utility.

There may be ways to grant such rebates of fees based on purely social arguments apart from the utility rate process, such as general fund allocations to pay utility charges of economically disadvantaged persons. This then becomes a policy decision based on non-technical merit and is not a part of the rate study per se, though it must be accounted for in revenue reduction estimates unless it is taken from general funds.

Recommendation: No special credit or exemption should be given on the basis of payer class. Should the County desire to address social issues, it should be done outside of the fee-structure and evaluated on other criteria or merits.

B. Credits Based on Classes of Property

Credits based on classes of property can be divided into three groups: private property classes, state and federal government property classes, and local government property classes.

Private Property Classes

Tax Exempt Property. Tax exempt private properties impose demands on stormwater systems, but

do not generate revenue to cover the cost of service to these properties, when stormwater services are funded through General Fund resources. This is often cited as a key motivation for creation of equity in fee allocation. As in the previous discussion, credits that exclude tax exempt properties from a stormwater service charge would violate the equity standard for a user fee and violate the principle that ownership, unless specifically addressed under the enabling legislation, is not a criteria for credits.

Recommendation: Credits should be granted for all properties based on the technical merit of the facilities or services provided, regardless of ownership.

Agricultural and "Undeveloped" Properties. Agricultural and "undeveloped" properties also offer another type of private property class. It can be argued that this type of property does not create the same impact on the drainage system as developed property because the infiltration capabilities of the property are not diminished. This may be quite true in the case of forested areas. For open grassy areas, the runoff is greater than forested property due to the loss of the rainfall retention of forest leaf and natural ground litter. For agricultural and intensively maintained recreational areas (such as golf courses), it can be argued that the pollution and sediment runoff is far greater than in the natural state. In this case, partial or total payment of the fee is warranted. A credit may then be granted for reduction of sediment or maintenance of a pollution abatement program. Credit programs for areas that are undeveloped have been successfully implemented through use of permanent conservation easements, for example. This type of credit would require the inclusion of all properties in the utility rate base, not just those that have been developed (i.e., imperviousness is present).

Recommendation: Unless the County includes all properties in the rate base, credits are not applicable to this class of property since they are not charged a user fee.

Individual Property Owners. Often, individual single family detached residential properties are not afforded the credit opportunities of non-residential properties. In the past, as utilities were created throughout the country, activities an individual homeowner could take to reduce stormwater pollution were considered minor (though in aggregate, would have a measurable impact) and nearly impossible to monitor without a significant investment by the community. To partially address this problem, communities typically allow homeowner associations to be eligible for certain types of credits, for regional-type structures. The administrative cost burden can be excessive in managing single-unit credits so that the savings to the overall program (the avoided public cost of service) is negated by the overhead cost to handle the credit program.

As Fairfax County addresses the incorporation of low impact development (LID) Best Management Practices (BMPs) in the treatment strategies for stormwater pollution reduction and control, consideration should be given for inclusion of individually owned, residential, single-lot BMPs in the credit program. A process for BMP inspection and technical assistance from the County to the property owner is an important component of service in support of the LID initiatives, to ensure that these structures are maintained and function properly over time.

Recommendation: It is recommended that the County keep the credit program simple in concept. The County should allow homeowner associations to be eligible for stormwater credits when the system component privately owned and managed serves as a regional facility for the development, addressing runoff from multiple properties within the development. Implementation of the credit should be handled in a manner that is flexible and meets the needs of the property owners. A credit should be evaluated and created to support the LID initiatives of the County with recognition that

managing oversight of LIDs will have a cost to the County.

Local, State and Federal Government Property Classes

State and Federal Facilities. State and Federal facilities do not pay local property taxes and can be exempted from paying the fee in its entirety, based on the State of Virginia enabling authority. . The property in question must have a stormwater system in place and it must be maintained by the "owning" public agency. If, for example, a US Post Office is owned by the Federal Government and does not have a stormwater system on site, then the property is not relieved from paying the fee. In all likelihood, there would be no credit eligibility either, since the legal exemption requires the presence of a "stormwater system."

When conditions meet the requirement for a Federal or State property to pay the fee, charging them a stormwater user fee becomes a new source of revenue for the utility and broadens the rate base by creating greater equity in the allocation of costs. The charging of other governmental facilities implies that the local government will provide some services to handle the runoff from or to these facilities. The utility must be prepared to actually handle runoff to and from these facilities if it charges them.

Recommendation: It is recommended that state and Federal facilities be treated like any other property and charged a fee if the legal test is met as established under the State enabling legislation. In all likelihood, a credit would not apply; however, if eligible for a credit, it should be offered as appropriate.

State Department of Transportation - Roadway Drainage. Under the enabling authority for the stormwater user fee, the County cannot charge the State of Virginia for the imperviousness of the state highway system. By law, this category is totally exempted.

Local Government Properties. Local government properties are not subject to property taxes. However, all local private property owners and other taxpayers participate in the ownership and management costs of these properties through their private property taxes. Exemptions of local government properties from stormwater charges normally is relatively revenue neutral, but who pays taxes is a different set of property owners than those who pay fees.

Under the enabling authority, the County shall not charge itself for properties it owns. However, property owned by other local governments within the service area of the County is not exempted from the user fee unless there is a stormwater system on the property and those systems are maintained. The County Attorney will need to clarify the legal status of properties that are under the ownership of the County School system and the Park Authority. These two bodies have separate legal structures. If it is ruled that these are not "owned" by the County, it is important to evaluate each parcel and determine if a stormwater system is present and if it is maintained, as defined under the law.

Recommendation: The County Attorney will provide clarification of the ownership of properties for the County Schools and Park Authority. The County will need to review the government-owned parcels within the County to determine (1) if there is a stormwater system on site and (2) if the system is maintained. If these two conditions are not met, then the property is eligible for payment of the user fee and for appropriate credits.

C. Credits Based on Location of Property

It can be argued that properties located adjacent to major streams do not make use of the stormwater system in the same way properties do which are located elsewhere in the system. Some communities have granted some measure of credit for those properties which are located adjacent to and discharge directly into major streams or creeks (Portland, Oregon for example). However, with the increase in focus on water quality protection, direct discharges may increase the pollutant loading into the natural stream system as well as increase stream bank failures. Direct discharging does not allow for protection unless there are systems on site to reduce flow, peak rate, and/or pollutant loading.

While these properties do not make use directly of as much of the man-made drainage system as properties located at the top of hills, there are strong justifications for not granting them credits. All properties benefit from installation of an adequate stormwater management system and the proof of special benefit is not necessary. Because of their riparian rights as owners of lands through which, or adjacent to which, streams flow, they are the primary, and often exclusive, beneficiaries of all systems and activities designed to reduce flooding, reduce flood insurance rates, regulate flood plains, develop greenways and clean up surface water. As individuals, they benefit from safer streets during heavy rains and a cleaner environment resulting from NPDES permit activities. They share in the general benefits of cleaner water and sounder development practices.

In fact, in some cities (Boulder, Colorado for example), a surcharge is imposed on floodplain located properties to pay for the city's floodplain administration costs.

Recommendation: It is recommended the utility not provide credits or exemptions for properties based on location.

D. Credit Based on Extraordinary Systems or Activities

Some properties may be required to construct overly large culverts, storm drains, inlets, etc., and do things others are not required in order to provide stormwater systems capable of meeting future as well as current needs. Requirements may range from oversized structures built in-lieu-of on-site detention to activities which enhance the function of the systems. In some cities and counties, requirements that developers provide extraordinary systems or activities are just considered a cost of doing business and credits are not granted. In others, credits are established to provide equity when the system components exceed minimum design criteria. To the extent that such systems and/or activities benefit the public generally, there is typically justification to grant a credit. Credits have been granted for the approved construction of detention or retention systems which handle flow from off-site.

Credits under this category could also be granted for other types of activities as an "in kind" payment. For example, some cities offer a credit to local schools if they provide education on surface water pollution and drainage. Public education is a major component of the County's VPDES permit. Other types may include such activities as assisting in off-site mitigation or maintenance, providing flood fighting or other flood hazard mitigation capabilities; offering education to other businesses or industries; provision of labor for capital construction, etc.

An additional class of credits under this category might be for activities which reduce pollution. One city gives a 25 percent credit for industries which maintain current National Pollutant Discharge Elimination System (NPDES) industrial permits for stormwater discharge. Development almost

without exception increases inadvertent pollution loadings to receiving waters. Illicit or illegal pollution is also part of development. Credit should not be given for reducing illegal pollution. Therefore, credit for disconnecting floor drain connections to storm systems would not be granted in locations where such practices are illegal anyway. Credit could be given for activities which are not required but are beneficial. Therefore, all types of structural and non-structural best management practices (BMP) may be eligible for credit. The next category discusses this in more detail.

Recommendation: It is recommended that:

- *the utility grant a credit for the pollution control portion of the fee for all properties which maintain a current NPDES industrial stormwater permit and are in compliance;*
- *the utility grant a credit for the pollution control portion of the fee for all properties which have, either through structural controls, land use or Comprehensive Plan requirements, taken steps to reduce pollution from their sites in accordance with the watershed protection measures of the County; and*
- *the County, in establishing the credit policy, consider other BMPs that are non-structural such as development and implementation of a Stormwater Master Plan on a private development or subdivision (e.g., as in Reston). These BMPs should be established with standards set by the County to ensure consistency in the non-structural programs.*

5) Credit Based on Reduction of Impact

The typical basic guiding principle in developing and granting stormwater credits based on impact and cost reduction can be stated as:

> *"Credit should be given for approved private investments or actions which reduce public cost, or which produce a stormwater related public good which is ongoing."*

Under this guiding principle there are a number of ways to look at how credits could theoretically be justified and applied.

Since the fee is typically based on impervious area, the credit should be based on a perceived reduction in impervious area. That is, to the extent owners make their impervious areas look, in terms of hydrologic impact, as if they are less impervious it may be appropriate to allow a credit. If the site impacts runoff as if it were not developed, it should not be charged as if it were. For example, if a property owner makes the hydrologic response from four acres of impervious area look like it is two acres of impervious area, the owner might get a fifty percent reduction in the quantity-based portion of the fee.

The difficult part is:

1. how to define a standard against which the system is judged;
2. how to define the impacts a property has on stormwater systems;
3. how to assign costs of service to the impacts;
4. how to measure reduction in these impacts and associated reductions in the cost of service; and
5. how much of the fee to make subject to crediting.

It is known, for example, that urban development generally has eight basic impacts on the drainage system: higher peaks, more "flashy" peaks, higher velocities, more total flow volume, higher levels

of pollution, more erosion and/or sediment, less long-term base flow, and higher temperatures. Should the credit be divided among these impacts and reductions in each impact credited individually? How much of the program is "chargeable" to peak increases, to pollution, etc.? Some communities provide credit for peak reduction alone.

On the strength of the recent NPDES permits, communities are looking at other ways to apply credits for pollution. The "polluters must pay" theory of financing pollution impacts is used as a basis for credits. Charlotte, NC for example, approached this problem by dividing the total fee among three impacts: peak, volume, and pollution controls for detention and retention facilities only. Control of peak runoff by delaying stormwater discharge to "off peak flow times" so that post-development runoff equals pre-development conditions receives a 50% credit. Reducing post-development total volume and pollutant loadings to the pre-development state may result in a 25% reduction for each factor. There could theoretically be a total of 100% reduction in Charlotte, though this is rarely possible in practice.

Greensboro, NC is approaching this problem in a more complex way providing credits for a variety of pollution reduction mechanisms both structural and non-structural. They propose using an inspector checklist and point rating system for the development of credits.

Recommendation: It is recommended that impact based credits be provided for reduction in peak flow, volume and pollution reduction. The value of the credit to the owner should be established as it correlates to the overall objectives of the stormwater program, as measured by the cost of services. When a privately owned facility or structure is design to address runoff generated up-stream of the property in addition to the runoff generated on-site, the utility should grant a credit to approved detention and retention facilities which are constructed and maintained in such a way as to control flow from off-site and reduce its impacts (for quantity and quality controls).

6) Credit Based on Reduced Cost of Service

The provision of detention or retention ponds theoretically reduces the cost of service for a given utility. It is somewhat comparable to reduced electric or water utility charges for use of systems in off-peak periods. Capital costs are lower because smaller conveyance system sizes can be used downstream from the property and, perhaps, older systems need not be replaced. Maintenance costs are lower because, presumably, the peak or volume of flow is reduced and thus the velocity-volume impacts on structural members and natural bed and banks is reduced. The actual determination of cost reductions is very difficult and therefore rules-of-thumb are often used. This type of cost reduction is contained in the impact reduction method suggested above.

Another cost reduction approach involves reduction of municipal responsibility by using private resources. Communities spend a certain number of dollars per acre on major and minor system maintenance. Larger properties which maintain their own systems to a certain acceptable standard may reduce the utility's cost for managing the impacts from their large area. This can be recognized through a credit equal to the area they remove from the utility's responsibility or the portion of the utility's cost of service that is reduced. Durham, NC approached the credit problem using this method. This approach is usually applied only when the existing service level requires the public agency takes responsibility for the conveyance system on private property, and that responsibility is taken over by the owner/operator of the site. In the County's situation, this could occur where services are provided for the conveyance system for example, and the private owner takes on the maintenance responsibility from the County.

To implement a mechanism like this, it will be necessary to: (1) determine the utility's projected cost per acre for the maintenance operations program; (2) determine a minimum area for which a property can apply for this credit based on the minimum size the utility typically maintains; (3) determine acceptable maintenance standards; (4) determine a means of verifying that the property owner or manager has an internal grounds crew or a contract grounds crew and a specific maintenance plan that will result in a suitable service level; and (5) determine an inspection or other reporting method to ensure compliance.

Conservation easements, where existing forested land is placed under a permanent conservation easement to prevent development, is one tool that can be used when current undisturbed forested areas are present in the County and it is desired that such property be protected. Credits for such action typically require the easement be dedicated to a third-party land trust and that the easement be placed on a significant portion of the lot or parcel. For example, if there is an undisturbed lot of 5 acres of which 80 percent is forested and is being considered for development, dedicating 10 percent in a conservation easement may not result in any measurable benefit. The County would need to consider the outcome of the dedication, in terms of a reduction in impact or cost of service for stormwater management, as one element of the credit criteria.

Recommendation: Credit for dedication of forested areas and for the maintenance of conveyance systems should be evaluated by the County to determine how to value these within the credit program structure. These are recognized as more difficult credit program elements to create though they may be useful as the County completes its system assessment program.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Bloomington, IN	**Y**	**20%**	**N**	**Y**	**$100 Quality; $100 quantity; $20 annual for other**	**Schools can achieve a 40% reduction using quality, quantity program and education credit.**

Quantity: Up to 20%

- Control 2/10/25/100 year storm with post development discharge at natural rate without development– up to 15% credit.
- Extra percent reduction if peak flow is reduced 20% below natural rate – 5%

Quality: Up to 20%

- Structural BMPs to remove 90% of TSS/year – 15%
- Conservation area dedication in easement – 5%
- NDPES credit – once a year, whole dollar amount for industrial permit - $200

Infrastructure Maintenance Credit: Up to 20%

- Maintenance of private facility that drains public areas based on size of area drained, capacity provided by the private system, and annual maintenance performed:
  Major system (drains more than 25 acres) – 15%
  Minor system (drains less than 25 acres) – 5%

Education Credits: 20%

- All public and private schools and school systems – must teach "Stormwater Education" program.
-

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
High Point, NC	**Y**	**40%**	**N**	**Y**	**N**	**No credit for multi-family residential properties.**

Quantity: up to 20%

- Structural controls to reduce discharge rate to predevelopment conditions.

Quality: up to 20%

- Utilization of City's BMP manual, implementation of approved strategies.

NPDES Credit – 20%

- Compliance with NPDES Industrial permit is eligible if quantity or quality control goals are not addressed.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SRF Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Sun Prairie, WI	**Y**	**65%**	**N**	**Y**	**$150 Refunded if credit approved.**	**Cannot receive a credit that would reduce the fee below the portion dedicated to the base program.**

Quantity: Up to 35%

- 5% - detain 2 yr storm and release at predevelopment flow.
- 10% - detain 5 yr storm and release at predevelopment flow.
- 15% - detain 10 yr storm and release at 5 yr storm flow.
- 25% - detain 25 yr storm and release at 5 yr storm flow.
- 35% - detain a storm larger than 25 yr event and release at 5 yr storm flow.

Quality: Up to 30% - benefit must be measured on a one-year storm event flow.

- 5% - 20 to 29% reduction of TSS
- 10% - 30-40% reduction in TSS or use of oil filters/separators.
- 15% - 41 -54% reduction in TSS or 20-40% reduction of TSS and use of oil filter/separators.
- 20% - 55-69% reduction in TSS or a 41-54% reduction and use of oil filter/separator.
- 25% - 70-100% reduction in TSS or a 55-69% reduction and use of oil filter/separator.
- 30% 70-100% reduction and use of oil filters/separator.

Note:
Consideration will be given for reduction of temperature, based on documentation.

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Charlotte, NC	**Y**	**100%**	**N**	**Y**	**N**	**No quality credits in program.**

Quantity: up to 40%

- Structural controls that reduce peak flows to 10 yr/6 hour storm event.

Quantity: up to 60%

- Structural controls that reduce volume to a 2 yr/6 hour storm measured in the 12 hr.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SRF Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Anderson IN	**Y**	**50%**	**N**	**Y**	**N**	

Quantity: up to 25%
- Discharge rate does not exceed 5 yr storm, predevelopment rate of flow; AND
- Retention or detention of 25 yr storm event on site.

Quantity: up to an additional 15%
- Up to 4% for additional 20% volume reduction.
- Up to 4% for reduction in development peak runoff rate by 20%
- Up to 4% to provide storage for 100 year storm event.
- Up to 3% extended storage with potential for ground water recharge.

Quality: 10%
- Compliance with NPDES Industrial permit; or
- Implementation of other BMPs as approved by the City.

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Beaufort Co. SC	**Y**	**50%**	**N**	**Y**	**N**	**Rate Structure includes gross area of parcel – all parcels pay the fee**

Quantity: up to 25%
- 10% - control 50 yr storm so that peak runoff rate under developed conditions is less than or equal to peak runoff under undeveloped conditions for entire site.
- 15% - control 100 yr storm so that peak runoff rate under developed conditions is less than or equal to peak runoff under undeveloped conditions for entire site.

Quality: up to 25%
- Dedication of conservation easement so that the area dedicated is removed from fee calculation.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SRF Eligible?	Application Requirements		Special Conditions
Name and State	Y/N	Amt.	Y/N	Y/N	Fee?	
Rochester MN	**Y**	**99%**	**N**	**Y**	**N**	**Fee reductions cannot reach zero – must pay at least the residential fee rate.**

Items 1 through 6 cannot exceed 30% total:

1. Non-structural BMPs – 10%

Must have all the following programs in place: (1) education program, (2) on-site refuse controls, (3) on-site stormwater system maintenance program, (4) paved area sweeping program, (4) sanitary sewer/storm sewer cross-connection inventory, (5) generator's used oil program, (6) landscaping for run-off rate control and water quality protection.

2. NPDES Industrial SW Permit Credit – 5%

Credit is given for the following conditions: (1) water testing is required in the industrial permit, (2) tests indicate results are consistently 10% below permit requirements for discharge, (3) copies of tests are provided to the City, and (4) industry is in compliance with all permit requirements.

3. Other Non-structural programs – 5%

This is set up for unique conditions, on a site by site basis. Documentation requirements are important.

4. Conveyance Credit – up to 10%

If private systems discharging directly into Zumbro River or one of the 6 tribs, up to 10% is provided if 50% of flow from the site is conveyed in private, maintained system. (conveyance must address 10 yr/24 hr storm as a minimum)

5. Quality Structural Controls – 15%

Approved list of BMPs, if one or more constructed on site and all flows go through the BMP prior to discharge from the site, based on a 10 yr/24 hr storm event.

6. Stormwater Runoff Rate Reduction – 15%

Flows at development reduced to pre-development conditions using approved list of structural controls for the 10 hr/24 hr storm.

Stormwater Volume Control – up to 70%

- based on % of flow that is leaving the site;
- using approved structural controls or preservation of open space
- controls designed to the 10 yr/24 hr storm.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Greenville, NC	**Y**	**50%**	**N (includes duplexes)**	**Y**	**N**	

Quantity: up to 20%

- **Facilities Regulated by Title 9 Chapter 9 Storm Drainage**
  Properties that provide an additional 20% volume under the emergency spillway of the detention facility. This volume will be used to offset downstream impacts for storm events greater than the 10-year event.
- **Facilities Non-Regulated by Title 9 Chapter 9 Storm Drainage**
  Properties that provide a decrease in peak flow rate.

Quality: an additional 20%

- Properties providing measures (a BMP or combination of BMPs) that reduce nutrient loading of phosphorus and nitrogen based on the Tar-Pamlico and Neuse Nutrient Management Strategy regulations will receive full credit.

Land Conservation Credit: up to 10%

- Establishment of a Perpetual Conservation Easement that meets the following criteria:
  1. The proposed easement is not established and protected through other regulatory programs, such as wetlands and riparian buffers, and
  2. The proposed easement is established on a Deed or Plat that shows the meets and bounds.

The Perpetual Conservation Easement and all associated requirements must remain in an undeveloped condition to receive credit. Credit is directly related to the total amount of land area dedicated to the easement.

Education Credit: an additional 10%

- Once the applicant has established BMPs that meet the City of Greenville's *Manual of Standard Designs and Details* or the NCDENR's *Stormwater Best Management Practices Guide* BMPs, they can obtain an additional 10% credit for implementation of a structured curriculum on stormwater issues related to that BMP.

Notes:

Maintenance Requirements. Credit allowed only for properties that maintain their structural controls in fully functional condition and according to maintenance criteria and BMP standards issued by the City and set forth by NCDENR.

Existing Structure Credits. Credit may be allowed for previously constructed controls.

Industrial NPDES Permits. Industries which must obtain and maintain and NPDES permit for stormwater runoff may receive credit if BMPs exceed state requirements per the NPDES permit.

Property Location. Credit will not be granted solely on the basis of location of a given property in relation to a major stream, river or within a watershed.

Voluntary Controls. For new developments, credit will not be granted where the City requires controls to be constructed and/or maintained. Other voluntary controls or upgrades of existing systems through retrofitting may be granted credits on a case-by-case basis.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Maryville, TN	**Y**	**50%**	**Y (Small Homes Credit)**	**Y**	**N**	

Small Homes Credit: 40% (SFR only)

- Available only to SFR properties with total impervious surface <1800 sq. ft.
- Credit applied automatically to all properties identified as residential condominiums.

Detention/Retention Credit: Up to 50% (NSFR only)

- 10% based on each level of storm event controlled (2, 5, 10 and 25-year events). Credit percentages are cumulative if the stormwater facility controls multiple storm events.
- Available to properties that have onsite stormwater detention and retention ponds designed to control the peak stormwater runoff rate or runoff volume. Peak runoff rate under developed conditions must be less than, or equal to, the peak runoff rate for the same property under undeveloped conditions.
- Homeowners associations may apply for a credit for a detention/retention pond that serves their neighborhood. Credit applied to common area only.
- Credit for new construction will not be approved until construction completed and detention/retention facility in working order.
- Credit also available for other types of facilities, activities, or control devices that restrict and control volume/peak flow related impact. Case-by-case basis.
- A Right-of-Entry or easement (whichever is applicable) must be granted to the City to approve the credit and allow occasional inspections by City personnel.

TMSP Credit: 10% (NSFR only)

- Available to properties that have and maintain a current Tennessee Multi-Sector General Permit (TMSP) for all appropriate facilities. Owner must re-apply for the TMSP credit each time that the TMSP is renewed with the State of Tennessee.

Water Quality BMP Credit: up to 10% (NSFR only):

- Available to properties that implement water quality BMPs outlined in the *Tennessee Guide to the Selection & Design of Stormwater Best Management Practices* that can assist the City in meeting NPDES Phase II permit requirements.
- Homeowners associations may apply for a credit for one or more structural BMPs. Credit applied to common area only.
- Credit also available for other types of facilities, activities, or control devices not presented outlined in the *Tennessee Guide to the Selection & Design of Stormwater Best Management Practices*. Case-by-case basis.
- A Right-of-Entry or easement (whichever is applicable) must be granted to the City to approve the credit and allow occasional inspections by City personnel.

Water Education Credit: 20% (elementary, middle and high schools only)

- Available to elementary, middle and high schools that teach a water resources-based curriculum approved by the Department of Engineering, Planning & Codes.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	Y/N	Amt.	Y/N	Y/N	Fee?	
Griffin, GA	Y	50%	N	Y	N	

Detention/Retention Credit

- **20% credit:** Available to properties where peak stormwater discharge rate for the 10-year storm from their stormwater retention/detention facility on a post –developed site is no more thatn 10% greater than the peak rate before development.
- **30% credit:** Available to properties where peak stormwater discharge rate from their stormwater retention/detention facility on a post-developed site is equal to the peak rate before development.
- **50% credit:** Available to properties where peak stormwater discharge rate from their stormwater retention/detention facility on a post-developed site is 20% less than the peak rate before development.

Notes:

- Stormwater retention/detention facilities must meet design, construction, and maintenance requirements to receive/maintain credit.
- Credit application form must be completed by a registered professional engineer.
- A Right-of-Entry or easement (as applicable) must be given to the City in order for a credit to be approved.
- Credit applications for existing facilities may be submitted at any time. Credit applications for new construction may be submitted once the facility is in place.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Cumberland County & Fayetteville, NC	**Y**	**100%**	**N**	**Y**	**N**	

Industrial NPDES Storm Water Discharge Permit Credit: 50%

- Industries which have obtained and currently maintain either an individual or general NPDES Storm Water Discharge Permit from the State of North Carolina are eligible. Industry must have a valid NPDES Storm Water Discharge Permit and follow a formalized Storm Water Pollution Prevention Plan (SWPPP) along with all associated and required programs.

Storm Water Structural Controls (BMP) Credit: up to 100%

- Credit based on TSS removal efficiency of six standard BMP designs for wet ponds and dry extended detention basins:

BMP Design	Design Criteria	Available Credit
1. Wet Pond	permanent pool volume = 0.5 inch storage per impervious acreage	60%
2. Wet Pond	permanent pool volume = 2.5 x volume of runoff from mean storm event	77%
3. Wet Pond	permanent pool volume = 4.0 x volume of runoff from mean storm event or designed as per State of North Carolina criteria for engineered storm water controls in water supply watersheds	100%
4. Dry Extended Detention Basin	runoff volume from a one-half inch storm released over 12 hours	63%
5. Dry Extended Detention Basin	runoff volume from a one inch storm released over 24 hours	63%
6. Dry Extended Detention Basin	runoff volume from a one inch storm released over 24 hours	63%

- Other Storm Water Structural BMPs will be evaluated (on a case-by-case basis) based on TSS removal efficiency.

Notes:

- Storm water controls must be properly maintained in a fully functional condition in accordance with maintenance criteria and BMP standards adopted by the Utility.
- Owners of properties containing portions of a storm drainage system carrying public water must dedicate a storm drainage easement if one does not currently exist.
- Credit will be allowed for existing storm water structural controls that meet Utility criteria and standards.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Columbia, SC	**Y**	**100%**	**N**	**Y**	**N**	

Detention/Retention Credit: up to 100%

- **Onsite stormwater detention or retention pond: up to 60% (credits are cumulative for each storm event controlled)**
  10-year storm – 20%
  25-year storm – 20%
  100-year storm – 20%
- Regional detention/retention facility: up to 100% (credits are cumulative for each storm event controlled)
  10-year storm – 40%
  25-year storm – 40%
  100-year storm – 20%

Education Credit: 20%

- Available to educational institutions that educate and inform their student about the importance of surface and groundwater resources as per criteria required by the City.

Notes:
Maintenance. A Maintenance Agreement must be executed by the Owner of detention/retention facilities in order for this credit to be approved.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Horry County, SC	**Y**	**50%**	**N**	**Y**	**N**	

Detention/Retention Facilities: up to 50% (credits are cumulative for each storm event controlled)

- 25-year storm – 10%*
- 50-year storm – 15%*
- 100-year storm – 25%*

**property's peak runoff rate under developed conditions must be less than or equal to rate under undeveloped conditions*

Conservation Easement

Prohibits the property form being developed in the future and stipulates that the property must remain in its natural state.

Properties located in existing Watershed Districts

- Credit is automatic based on Watershed District millage.

Notes:

Right-of-Entry on detention/retention facilities must be given to the County in order for this credit to be approved.

Application requirements. Engineering calculations must be performed by a registered professional engineer.

Maintenance Agreement. To ensure that detention/retention facilities meet minimum maintenance requirements specified by the County, property owners must submit a Maintenance Agreement with the credit application.

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Prince William County, VA	**Y**	**50%**	**N**	**Y**	**N**	

Quantity: up to 40% (credits for each storm event controlled are cumulative)

- 2 year / 24 hour flood: 10%
- 10 year / 24 hour flood: 10%
- 25 year / 24 hour flood: 10%
- 100 year / 24 hour flood: 10%

Quality: 10%

- BMPs in accordance with county standards for water quality protection.

Approved stormwater management or stormwater quality protection projects: up to 30%

- Adopt-a-pond project, volunteer lawn program, etc. 10%
- Credits for more than one project will be cumulative

Notes:

- Stormwater Maintenance Agreement required for credit eligibility
- Credits for both quantity and quality are cumulative. Credits may not exceed 50% of stormwater fee

Summary of Credit Programs Sampled

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Newport News, Virginia	**Y**	**70%**		**Y**		A one hundred (100) percent service charge adjustment shall be granted upon approval of a request for those portions of parcels that are subject to and in compliance with the requirements of an individual federal or state industrial stormwater discharge permit, drain into a privately owned, operated and maintained storm drainage systems, and discharge directly into waters of the United States

Quantity: Up to 30%

- 75-100 percent reduction in post development peak runoff rate-15 percent service charge adjustment;
- 50-74 percent reduction in post development peak runoff rate-10 percent service charge adjustment; and
- 30-49 percent reduction in post development peak runoff rate-5 percent service charge adjustment.

Quality: Up to 30%

- Wet retention basin(s) - 15 percent;
- Extended dry detention-10 percent; and
- Infiltration facilities-5 percent.

Green Space: Up to 10%

- Greater than ten (10) percent and up to and including twenty (20) percent green area-5 percent; and
- Greater than twenty (20) percent of green area-10 percent.

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	**Y/N**	**Amt.**	**Y/N**	**Y/N**	**Fee?**	
Virginia Beach, Virginia	**Y**	**50%**		**Y**	**N**	**Property owners may apply for 100% reduction in the utility fee if stormwater is not discharged into the city stormwater system or if it discharged directly into the Atlantic Ocean or the Chesapeake Bay.**

Wet Detention Ponds: Up to 30%

- The facility must have a permanent pool of water with volume based on an average hydraulic residence time greater or equal than 2 weeks.
- Partial fee adjustments may be made where a wet detention pond serves less than the total area of the property. The adjustment is equal to the ratio of partial area served to the total area of the property multiplied by 30%.
- If the pond fails to meet wet detention pond criteria, it may be considered for adjustment based on extended dry detention pond criteria.

Dry Detention Ponds: Up to 20%

- Detention time should not exceed 72 hours
- Partial fee adjustments may be made where a dry detention pond serves less than the total area of the property. The adjustment is equal to the ratio of partial area served to the total area of the property multiplied by 20%.
- Partial fee adjustments may be made for dry detention ponds that do not meet the 24-hour detention time criterion as long as they detain water for at least 12 hours.

Infiltration Facilities: Up to 20%

- Must fully exfiltrate the stormwater into the underlying soil in no more than 72 hours.
- Minimum infiltration rate =0.5 in/hour
- Vegetative buffers required around facility.
- Partial fee adjustments may be made where an infiltration facility serves less than the total area of the property. The adjustment is equal to the ratio of partial area served to the total area of the property multiplied by 20%.

Other Facilities: Up to 10%

- Vegetation practices, oil/water separators, and other urban BMPs must be shown to have been designed and constructed and currently functioning as integral and effective components of the property's total SWM plan.
- Vegetated buffers established for regulatory requirements may be omitted from the total area of the property for fee adjustment calculations.
- Partial fee adjustments may be allowed at the rate of 1% for each 10% of the property served effectively by the facility.

Flood Control Facilities: Up to 20%

- Facility must control the 2-year 24-hour storm such that the post-development runoff volume and peak flow do not exceed the pre-development runoff volume and peak flow.
- Facility must control the 100-year 24-hour storm such that the maximum post-development off-site elevations do not exceed the maximum pre-development off-site elevations.
- Partial fee adjustments may be made where a flood control facility serves less than the total area

of the property. The adjustment is equal to the ratio of partial area served to the total area of the property multiplied by 20%.

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	Y/N	Amt.	Y/N	Y/N	Fee?	
Hampton, Virginia			**N**	**Y**		

Relief from a percentage of the fee is possible as long as the property owner follows Best Management Practices (BMP's) on their property. These include such things as retention ponds, detention areas, infiltration facilities, 20% green space area, or parking lot sweeping on a regular basis.

Community	Is there a Credit Max?		SFR Eligible?	Application Requirements		Special Conditions
Name and State	Y/N	Amt.	Y/N	Y/N	Fee?	
Chesapeake, Virginia			**N**	**Y**		**A 20% credit was applied to all properties until July 1, 1997**

Property owners can qualify for a credit on their utility fee by utilizing Best Management Practices (BMPs). BMPs are devices used for on-site control of stormwater runoff and to provide water quality improvements (i.e., detention lakes, retention ponds, vegetated buffer strips, grassed swales, etc.).

Precise determination of the magnitude of the credit will depend in part on calculations made by the director of public works as to the extent of the control provided by the property owner. The director shall consider the degree of control of both quantity and quality of stormwater when determining such credits. In addition, the director shall consider future responsibility for maintenance when determining credits. In no case shall the user charges be reduced to an amount less than the rate established for one ERU.

FAIRFAX COUNTY STORMWATER NEEDS ASSESSMENT PROJECT PHASE II OF THE WATERSHED COMMUNITY NEEDS ASSESSMENT AND FUNDING OPTIONS STUDY

Executive Summary:

Upon completion of the initial Fairfax Watershed Community Needs Assessment and Funding Options report, the findings of which were presented to the Board of Supervisors' Environmental Committee in July 2004, a citizen Stormwater Advisory Committee (SAC) was appointed by the Board to assist in refining the scope of services for the stormwater program as well as evaluate the creation of a dedicated funding source. Over the past eight months, the Consultant Team, staff and the Advisory Committee have focused on defining a level of service and funding strategy that is presented in this preliminary report. Included in this report are the findings and recommendations of the Consultant Team on specific resource needs driven by the priorities and level of service defined through the assistance of the SAC.

Included in this report are findings regarding the final recommended six year program plan, cost of the services defined in the program and preliminary analysis of a dedicated funding strategy, including an analysis of the financial impact on various classes of properties in the County.

Program Highlights:

- Implementation of Capital Improvement Program driven by updated Watershed Plans, beginning with the Little Hunting Creek Watershed Plan adopted by the Board. In addition, it is anticipated that the Popes Head Creek Watershed Plan will be completed and adopted in Year One of the Program Plan and will also be part of the initial investment strategy. It is estimated that implementation of the Watershed Plans capital improvement needs will be $500 to $800 million. At the current level of funding for the CIP program, it would take 250 years to address the backlog.

- Compliance with the Municipal Separate Storm Sewer System permit (MS4), which requires the County to implement specific strategies and Best Management Practices (BMPs). This permit will be renewed in calendar year 2006 and requires finalization of the current permit terms (in Year One of the program) and negotiation of the renewal (in the first half of Year Two). It is anticipated that the next permit term will be more demanding due to recent actions of the State regarding the Potomac Tributary Strategy. The County's MS4 permit is a target for incorporation of goals on nitrogen and phosphorus removal from urban streams.

- Reinvestment in the existing infrastructure to retrofit stormwater management facilities to provide both water quantity and water quality protection. The current system owned and operated by the County includes 1,400 miles of underground pipe, over 800 miles of streams, and 1,100 stormwater management facilities. A

significant portion of the system has been in place for over 50 years and the County will be challenged to maintain its performance as it reaches the end of its useful life. The County can expect an increase in system failure if a rehabilitation program is not funded.

- Education of the community on water quality protection, watershed management, pollution prevention and other key elements of stormwater program. Much will be demanded of the County as State and Federal mandates for water quality protection are expanded and new standards for control of nitrogen and phosphorus in streams that drain to the Potomac and ultimately to the Chesapeake Bay are established. If the current voluntary program is not successful in providing protection and improvement to the Bay, it is expected that the "voluntary" strategy will be shifted to a mandate, based on a Total Maximum Daily Load (TMDL) allocation. The public needs to understand the challenge and their role in protecting and improving water quality and stream health.

- Expanded long-term system maintenance strategies and program resources to ensure that the system performs as designed. Current maintenance resources can only respond to high priority problems. In addition, the time of response is increasing as more needs are identified. Maintenance services are integral part of ensuring achievement of performance goals for the stream system. Optimization of the existing system contributes to a sustainable level of service that will ultimately provide effective protection of the environment.

- Finalization of the Watershed Plans updates. The current schedule for completion of the Watershed Plans is 2010. The Chesapeake Bay Program supported by the Potomac Tributary Strategy, has a target date of 2010 to achieve the goals; however, a number of the Watershed Plans will not be updated in sufficient time to contribute to the voluntary goals of these Federal and State regulatory efforts. It is important that the County update their Plans as soon as possible to allow for an effective prioritization plan for investment in implementation. A focus of the comprehensive program is to complete the Plan updates in the first two years, so that implementation can begin in all areas of the County as soon as possible.

- Sustain on-going initiatives in stream assessment, water quality monitoring and other integral components of a comprehensive program of services that support key elements of CIP, maintenance, and planning.

Cost of Service

To achieve the goals of the six year program plan, an evaluation of the cost of services was completed. Currently the County invests approximately $11.5 million for stormwater program elements (based on evaluation of the FY 2004 and FY 2005 budgets). Costs are captured in great detail in the cost model. Below they are summarized by broad categories of Engineering and Design, Operations and Maintenance, Construction Services, Plan Review and Erosion Control, Watershed Management and MS4 Compliance, and General Expenses. These costs include both new initiatives and

current program activities. The full discussion of costs and cost categories can be found in the Cost of Service section of the report.

Table ES-1 Summary of Six Year Program Costs

Cost Center	2006	2007	2008	2009	2010	2011
Engineering and Design	$ 3,378,369	$ 2,470,923	$ 2,768,074	$ 2,770,870	$ 2,925,964	$ 2,967,492
Operations and Maintenance	$ 9,211,229	$ 11,764,281	$ 14,364,877	$ 19,251,477	$ 19,438,149	$ 21,536,414
Plan Review and Erosion Control	$ 1,398,133	$ 1,813,331	$ 1,844,062	$ 2,154,266	$ 2,301,023	$ 2,335,067
Construction Services	$ 10,209,454	$ 11,570,331	$ 16,253,445	$ 14,886,726	$ 15,633,245	$ 18,289,920
Watershed Mgmt and MS4 Compliance	$ 6,473,887	$ 5,282,079	$ 2,115,420	$ 2,261,241	$ 2,309,259	$ 2,333,641
General Expenses	$ 1,529,963	$ 3,265,111	$ 3,539,573	$ 4,139,130	$ 4,166,352	$ 4,277,039
Total Program	**$ 32,201,034**	**$ 36,166,056**	**$ 40,885,451**	**$ 45,463,710**	**$ 46,773,991**	**$ 51,739,574**

Funding Options

During the initial study completed in July 2004, an assessment of funding options was completed and reported to the Board's Environmental Committee. At that time, the Consultant Team recommended the further review and analysis of creation of service-fee based revenue to support stormwater management in the long-term. During this phase of the assessment, the Consultant Team worked with staff and the citizen Stormwater Advisory Committee (SAC) to identify the criteria that should be used to establish an appropriate mix of revenue sources. The SAC provided the following input:

Principles for Funding Options
1. Distribute cost of services on the basis of demand for those services. (equity)
2. Recognize positive behaviors by land owners when they reduce impacts of discharges on peak flow and pollutant loading.
3. Dedicate funding to the objectives of the stormwater program so that funds cannot be redirected to other competing priorities. (sustainability)
4. Encourage greener development through the funding strategy.
5. Make the funding mechanism applicable across all property owners. (fairness)
6. Apply the funding strategy uniformly across the County.
7. Utilize bond debt to support the capital improvement program. (adequate)

Historically, the utilization of service fees for major infrastructure programs such as solid waste management, drinking water supply, and sanitary waste management have met the principles identified by the Committee. The Consultant Team recommends the use of a dedicated service fee, through the establishment of an enterprise fund or public utility.

Cash Flow Analysis

The following table summarizes the cash flow analysis based on the following assumptions:

- The enterprise fund would be established in FY 2006 and funded through transfers from the General Fund while the utility structure is completed and the Master Account File is generated.
- The first billing would occur in June 2006 utilizing the Real Estate Tax billing system.
- The rate would remain constant for two fiscal years, with adjustments in rates in FY 2009 and FY 2011.
- An update of the rate model would occur in FY 2010 to validate the program needs and to project the cash demands for the next five year period.

Table ES-2 Preliminary Rate

Fiscal Year	Rate per Billing Unit	
	Monthly	Annually
2007	6.46	77.52
2008	6.46	77.52
2009	7.40	88.80
2010	7.40	88.80
2011	7.95	95.40

Table ES-3 Cash Flow Analysis

Stormwater Cost of Service Analysis/Rate Model Revenue/Expenditure (Cash Flow) Analysis					
	Year 1	Year 2	Year 3	Year 4	Year 5
Expenses					
Annual Operating Expense	$ 21,002,285	$ 23,138,099	$ 27,190,839	$ 28,504,712	$ 28,448,907
Annual Capital Expense and Bonded Capital Expense	$ 15,470,000	$ 18,070,000	$ 18,650,000	$ 18,650,000	$ 23,650,000
Subtotal: with Inflation	$ 36,472,285	$ 41,971,656	$ 46,738,137	$ 48,095,368	$ 53,037,721
Bond Sale Costs and Debt Service	$ -	$ -	$ -		
Bond Debt Service Coverage	$ -	$ -	$ -	$ -	$ -
Operating Fund Balance and Emergency Reserve- Unappropriated	$ 2,100,228	$ 618,855	$ 131,387	$ (5,581)	$ 93,881
Total: Expenses	$ 38,572,513	$ 42,590,512	$ 46,869,524	$ 48,089,787	$ 53,131,602
Other Revenues					
Funds Carried Forward	$ -	$ 1,492,967	$ 44,370	$ 618,161	$ 845,450
Bond Sales Receipts and Assocated Funds	$ -	$ -	$ -	$ -	$ -
Other Fees and Charges (Pro Rata)	$ 5,400,000	$ 5,400,000	$ 5,400,000	$ 5,400,000	$ 5,400,000
Interest Income	$ 420,046	$ 462,762	$ 543,817	$ 570,094	$ 568,978
Recovered Delinquencies		$ 332,542	$ 388,550	$ 396,321	$ 434,292
Other Resources (Fees for E&S)	$ 956,874	$ 992,278	$ 1,028,993	$ 1,067,065	$ 1,106,547
Total: Other Revenues	$ 6,776,920	$ 8,680,550	$ 7,405,730	$ 8,051,642	$ 8,355,267
Service Fee Revenue Requirement	$ 31,795,594	$ 33,909,962	$ 39,463,795	$ 40,038,146	$ 44,776,335
Revenue Stream Reduction Allowances					
Delinquencies and Bad Debt	$ 343,181	$ 350,045	409,000	417,180	457,150
Offsets					
Credits	686,362	700,089	409,000	417,180	457,150
Total: Revenue Reduction Allowances	$ 1,029,543	$ 1,050,134	$ 817,999	$ 834,359	$ 914,300
Adjusted Service Fee Revenue Requirement	$ 32,825,137	$ 34,960,096	$ 40,281,794	$ 40,872,505	$ 45,690,635
Estimate of Service Fee Needed/Year					
Annualized ERU Revenue Requirement	$ 32,825,137	$ 34,960,096	$ 40,281,794	$ 40,872,505	$ 45,690,635
Number of ERU	442,700	451,554	460,585	469,797	479,193
Estimated Monthly Charge per ERU	$ 6.18	$ 6.45	$ 7.29	$ 7.25	$ 7.95
Service Fee Recommendation					
Recommended Monthly Charge per ERU	$ 6.46	$ 6.46	$ 7.40	$ 7.40	$ 7.95
Estimated Annual ERU Revenue	$ 34,318,104	$ 35,004,466	$ 40,899,955	$ 41,717,954	$ 45,714,985
Estimated Year-end Revenue Surplus (Deficit)	$ 1,492,967	$ 44,370	$ 618,161	$ 845,450	$ 24,351
Available Funds for Appropriation in Following Year	6.5%	0.2%	2.2%	3.0%	0.1%

Impacts of Service Fees on Various Properties in the County

After completion of the preliminary rate analysis, the Consultant Team evaluated the impact of the use of service fees on various properties in the County. The use of service fees, based on demand as measured by the presence of imperviousness on each property, shifts the burden to those who place the *greatest demand for County services*. Several properties were evaluated to demonstrate the shift from a "value" basis for supporting stormwater (property tax) to a fee basis (imperviousness). The data below assumes the following:

- A tax rate of $1.03
- The value of the property for tax evaluation is based on the Department of Tax Administration's data, provided in March 2005.
- The number of billing units for the fee estimate is based on evaluation of imperviousness taken from current County aerial photography and digitally measured for each property studied.
    - The billing unit is 3,398 square feet of imperviousness.
    - The annual fee is $77.52 per ERU.

- The estimated tax bill is calculated using a formula of "assessment divided by 100, multiplied by $1.03."
- The portion of the tax bill for stormwater is based on the formula:
  - estimated tax bill divided by 103 to establish what the value of one cent is for their bill;
  - take the value of one cent raised and multiply by the number of cents necessary to fund the stormwater program (total budget divided by $17.9 million – the amount one cent is projected to raise in FY 2006, County-wide).

Table ES 4 – Comparison of Property Tax to Fee Revenues

Property	Est. 2005 Tax Bill Based on $1.03 Rate	Portion of Potential Tax for SW	Est. Fee $77.52 Annually Per ERU
Fair Oaks Mall	$3,144,778	$ 58,847	$ 81,241
Tysons Park Inc	$ 595,140	$ 11,136	$ 5,891
Capital One Bank Bldg.	$1,529,204	$ 28,615	$ 15,890
Lord of Life Lutheran Church	none	none	$ 1,402

The data samples represent three commercial buildings and a church. Two of the three commercial buildings are multi-storied and have a significant tax valuation. The third commercial property is a shopping center (Fair Oaks Mall) whose characteristics include large open parking areas, on flat-lots, and a linear building foot-print. The Church was included to demonstrate that properties currently not paying into the property tax pool of resources would be included in a fee-based revenue source. The shift in burden is representative of the funding principle ***that the amount any property pays for stormwater services should be driven by demand or need for service rather than by value of the property.*** This principle was defined by the Stormwater Advisory Committee as one important factor in determining how to fund the stormwater program.

The Washington Post provided a comparison of single family home property valuations for Fairfax County. The data was used to evaluate the shift in revenue generation from a real estate tax to a fee. The same approach was used to determine the amount of the tax bill dedicated to stormwater. The estimated fee utilizes a fixed fee for single family residential properties. This is a key policy decision that would need to be made, if the Board of Supervisors acts to create a utility. Data on imperviousness for each parcel is not currently available.

Table ES 5 – Comparison of Property Tax to Fees for Residential Property

Area	Average Valuation	2005 SW Portion of Tax Bill	Estimated Fee
Annandale	$383,488	73.91	77.52
Burke	$373,686	72.03	77.52
Chantilly	$425,192	81.95	77.52
Clifton	$579,342	111.65	77.52
Fairfax Station	$639,809	123.31	77.52
Great Falls	$770,709	148.54	77.52
Lorton	$294,696	56.80	77.52
McLean	$755,539	145.63	77.52
Oakton	$605,294	116.66	77.52
Reston	$362,440	69.87	77.52
Springfield	$362,725	69.93	77.52

In both commercial and residential properties, the examples show the impact on each property owner of the decision to use property value versus demand (as measured by imperviousness). Equity and fairness can be more easily demonstrated through the use of fees than property tax.

Recommendations of the Consultant Team:

It is recommended that the stormwater management program as defined through this assessment be enhanced over the next decade to take positive steps for implementation of water quality and water quantity protection measures that will contribute to a sustainable quality of life for all of Fairfax County.

It is the recommendation of the Consultant Team that the County establish a stormwater enterprise fund for FY 2006 and that during the first year of operation the resources of the fund be supported by the General Fund. During FY 2006, the stormwater utility fee will be fully analyzed and a schedule of rates will be established by the Board of Supervisors during their budget adoption for FY 2007. It is further recommended that the General Fund be relieved of the burden to support the stormwater program in FY 2007, with a property tax reduction as appropriate.

This recommendation is supported by the guiding principles identified by the Stormwater Advisory Committee. The shift from General Fund support to an enterprise fund will

meet the long-term needs for a stable, equitable, adequate and fair approach to resource generation for the program. In addition, it is recommended that the program of Pro Rata Shares be eliminated and a new program of in-lieu-of-construction fees be established to provide for developer contributions to regional facilities when the site under development is better served through a regional solution rather than through on-site controls.

It is recommended that a program of credits be established as well as a process for appeal and fee-adjustment, both of which need to be created during the FY 2006 year of implementation. Credits are an important component of an effective user-fee system, recognizing the contributions of the private property owners in the overall performance of the drainage system. Credits should be considered for both water quality and water quantity protection. Consideration should be given for credits that address non-structural as well as structural Best Management Practices that support the overall goals of the stormwater program.

FAIRFAX COUNTY STORMWATER NEEDS ASSESSMENT PROJECT PHASE II OF THE WATERSHED COMMUNITY NEEDS ASSESSMENT AND FUNDING OPTIONS STUDY

I. Call for Change

Since the establishment of the Stormwater Management business area as part of the reorganization of the Department of Public Works and Environmental Services (DPWES) in FY 2000, new emphasis has been placed on environmental stewardship within the stormwater management areas. This new emphasis has resulted in new programs that consolidated key functions and resulted in implementation of master plan efforts, development of a comprehensive Watershed Management approach, improved business practices in the areas of inspections, citizen complaint response, public outreach, stream monitoring, and regulatory compliance, and increasing partnerships with regional and state agencies to better identify and implement storm drainage improvement projects. This has placed the County in a better position to understand the challenges that are still to be addressed. There is much to do to bring about the needed transformation from a program that can be characterized as "reactive" and "limited" to one that is effectively managing major infrastructure, responsive and comprehensive, anticipating needs and efficiently implementing environmental controls.

The County population grew by over 18% between 1990 and 2000 and is projected to grow at a similar rate between 2000 and 2010. Along with this growth comes new housing units, new roads, new commercial and employment centers, and new infrastructure, increasing impervious area and increasing the need for stormwater management services. At the same time, new or revised regulatory goals are being set in the areas of water quality protection (Chesapeake Bay 2000, TMDL program, and NPDES MS4), infrastructure management (VPDES and GASB 34), dam safety (PL-566) and public involvement (VPDES and Chesapeake Bay 2000). A summary of the recently established strategy for the Potomac River Tributaries can be found in Appendix A of this report. In addition, at the request of the citizen Stormwater Advisory Committee, a summary of mandates challenging the County for stormwater management was prepared and can be found in the Committee Report section.

Add to this that much of the existing infrastructure is approaching the end of its useful life, and it becomes obvious that to accomplish the goals of the stormwater management to protect the environment and provide a sustainable quality of life for all citizens of the County, a more robust program of service to the community is needed.

The estimated cost of implementation of the known capital construction projects is $350 million (in 1997 dollars). With the completion of the updates of watershed management plans, it is anticipated that the CIP will grow to $800 million. At the current rate of reinvestment, it will take 250 years to implement the capital construction projects and Best Management Strategies identified in these plans.

In summary, the key issues facing the County are:

- Regulatory mandates to protect the stream health and overall environment in the County.
- Regulatory programs to address protection of the Potomac River and Chesapeake Bay.
- Aging infrastructure reaching the end of its useful life, resulting in more system failures and a need for an infrastructure replacement program.
- Growing backlog of Capital Improvements, estimated to be between $500 and $800 million.

II. Level of Service

A critical component to understand the overall needs of the County is the level of service that is required to address the critical issues facing Fairfax. The program drives the policy regarding funding, private investment, developer regulations, and maintenance methodologies. To evaluate the cost of service for changes in current activities and initiation of new program elements, the level of service (or the quantity, mix and phasing of program elements) must be established to address priorities or goals of the program.

Over the past six months, the County and the Consultant Team have worked with a citizen Stormwater Advisory Committee to prioritize the program initiatives that will address the challenges in watershed plan implementation, long-term system operation, regulatory compliance, and program management. The following program categories (program matrix) were used to define the effort necessary to shift the program to a more comprehensive approach in management of the drainage system and in environmental protection.

Engineering and Design

- Design Criteria, Standards and Guidance
- Design, Field and Operations Engineering
- Maintenance and Field Engineering Support
- Hazard Mitigation Planning
- Dam Safety Program
- Retrofiting Program
- Flood Insurance Program
- Community Rating System
- Code Development and Zoning Support Services
- GIS, Mapping and Database Management
- Public Education/Outreach
- Infrastructure Management Planning

Operations and Maintenance

- General Maintenance Management
- Stormwater Management Facilities Maintenance
- Conveyance System Maintenance
- General Remedial Maintenance
- Emergency Response Maintenance

- Infrastructure Management Program
- GASB 34
- Field Data Collection
- Public Drainage System Inspection/ Regulation
- Private Facilities Inspection and Regulation
- Public Assistance and Complaint Response

Plan Review and Erosion Control

- General Code Development and Review
- Stormwater Systems Inspection -New Development
- Regulatory Enforcement
- General Permit Administration
- Erosion and Sediment Control Program

Capital Construction

- New System and Stormwater Facility Upgrade Capital Improvements
- Construction Project Management
- Inspections
- Conveyance System Rehabilitation
- Contracted Survey Services
- Land, Easement, and ROW Acquisition

Watershed Management Planning and MS4 Permit Compliance

- Watershed Planning
- BMP Development
- Comprehensive Monitoring Program
- Stream Protection and Restoration
- BMP Programs and Activities
- Used Oil and Toxic Materials
- Spill Response and Clean Up
- Program for Public Education and Reporting
- Illicit or Cross Connections
- Illegal Dumping
- Multi-objective Planning and Support
- Zoning Support
- Landfills and Other Waste Facilities
- Emergency Response

General Expenses

- General Stormwater Program Administration
- HR Functions
- General Program Planning and Development
- Budget and Cost Controls
- Contract Management
- Interagency Cooperative Activities
- Emergency/Disaster Management

II-A. Current Services

The current resources for staff, operations and maintenance, capital construction, watershed planning, general expenses and regulatory compliance, using the FY 2005 budget, were assigned to address the functions identified above. For example, existing staff positions assigned to this program were reviewed to determine gaps in resources necessary to meet program objectives for the long-term. The process involved assigning available time in increments of one percent to the needs as defined using the program matrix. As this is an evaluation of resource demand and NOT a budget, the financial analysis is based on the position class within the County personnel classification system, set at a mid-range and fully burdened. This allows for the evaluation of the time demands and the total cost to the County for the services addressed by each staff position. The following represents a sample of the position review.

Fairfax County Stormwater Program							Annual Inflation Rate
Stormwater Cost of Service Analysis/Rate Model							
Cost of Service Analysis: Personnel Allocation (by title, costs fully-burdened)							
Year 1							
Major Cost Category	SWP Director S-34		Branch Chief - Planning (S 31)		Branch Chief - Projects (S-31)		
Cost Subcategory		$ 118,826.46		$ 106,483.79		$ 106,483.79	
Administration							
General Stormwater Program Administration	0.15	$ 17,823.97	0.10	$ 10,648.38	0.10	$ 10,648.38	
Billing Operations		$ -		$ -		$ -	
Legal Support Services		$ -		$ -		$ -	
HR Functions	0.05	$ 5,941.32	0.05	$ 5,324.19	0.05	$ 5,324.19	
General Program Planning and Development	0.05	$ 5,941.32	0.05	$ 5,324.19	0.05	$ 5,324.19	
Budget and Cost Controls	0.10	$ 11,882.65	0.05	$ 5,324.19	0.05	$ 5,324.19	
Contract Management		$ -		$ -		$ -	
Public Education/Outreach		$ -		$ -		$ -	
Interagency Cooperative Activities	0.05	$ 5,941.32	0.03	$ 3,194.51	0.03	$ 3,194.51	
GIS, Mapping and Database Management		$ -		$ -		$ -	
Indirect Cost Allocations		$ -		$ -		$ -	
Unspecified Overhead		$ -		$ -		$ -	
Cost and Rate Analysis		$ -		$ -		$ -	
Emergency/disaster Management	0.02	$ 2,376.53		$ -		$ -	
Subtotal:	0.42	$ 49,907.11	0.28	$ 29,815.46	0.28	$ 29,815.46	
Engineering and Design							
Design Criteria, Standards and Guidance	0.05	$ 5,941.32	0.03	$ 3,194.51	0.10	$ 10,648.38	
Design, Field and Operations Engineering		$ -		$ -	0.05	$ 5,324.19	
Maintenance and Field Engineering Support		$ -		$ -		$ -	
Hazard Mitigation Planning		$ -	0.03	$ 3,194.51		$ -	
Dam Safety Program	0.02	$ 2,376.53	0.02	$ 2,129.68		$ -	
Retrofiting Program		$ -		$ -		$ -	
Flood Insurance Program		$ -	0.01	$ 1,064.84		$ -	
Community Rating System		$ -	0.01	$ 1,064.84		$ -	
Code Development and Zoning Support Services	0.05	$ 5,941.32	0.02	$ 2,129.68		$ -	
Infrastructure Management Planning	0.05	$ 5,941.32	0.02	$ 2,129.68		$ -	
Subtotal:	0.17	$ 20,200.50	0.14	$ 14,907.73	0.15	$ 15,972.57	

In addition, existing direct costs such as equipment, supplies and capital contracts were also allocated using the program matrix, evaluating how these resources meet the program goals; NOT how they are currently budgeted but how they can be used to meet the defined needs of the County. This process identifies the gaps in resources needed to address all program goals and objectives. The projection of new resources is based on using the existing resources as effectively as possible to address long-term priorities.

II-B. Proposed Level of Service

Development of the recommended level of service was completed by using input from the Stormwater Advisory Committee and staff and by identifying program components needed to address them. The next step compared the existing resources available and

defined new resources necessary to fill gaps in service capability. The new plus existing resources define the total service resources needed to accomplish the program goals.

The major priorities to be accomplished in the recommended level of service include the following, by program area:

Engineering and Design

1. Expand the floodplain management program including management of the dams operated and maintained by the County to meet all regulatory requirements. This is a critical initiative to ensure that floodplains are protected and that the County's liability for the management of dams, including State regulated dams is minimized.
2. Maintain the stream physical assessment program, including databases and GIS tools, and continue on-going analysis. This program is important in the process of Watershed Planning and will be used to evaluate the success of various projects/Best Management Practices implemented from the Watershed Plans.
3. Expand existing efforts in public education, including establishing a permanent full-time position for stormwater communications, program-wide, not just focused on planning but on all areas of stormwater management (maintenance, regulatory and permit compliance, Best Management Practice (BMP) implementation, volunteerism, etc.).
4. Design and implement projects identified in Watershed Plans; projects to address major system retrofits; dam improvements; and other projects established in the Capital Improvement Program.
5. Increase support for construction management and land acquisition activities necessary to respond to an increase in capital construction, ensuring that projects will be implemented in a timely manner. All areas of construction management must be addressed to ensure that projects will not be delayed due to limited capability in easement and property acquisition as well as construction oversight and inspection.

Operations and Maintenance

1. Complete an assessment of the existing drainage system, including the interconnections with privately owned facilities. This includes the inventory and assessment of those private facilities to evaluate the role of the County in their on-going operations and maintenance. Future goals of the program may include County maintenance of privately owned facilities.
2. Enhance the level of service for facilities maintenance through a growth in the mowing program, both in-house capabilities and through contracted services.
3. Create an easement inventory for access to the stormwater drainage system and identify deficiencies. This will improve the efficiency of maintenance of the overall system and is important in the evaluation of County maintenance policy regarding privately owned facilities.
4. Implement programs to address compliance under the MS4 permit. These programs include sweeping of County-owned properties (driveways and parking), contracted inspection of hazardous material storage facilities, and signing watersheds for public education.

5. Inspect privately owned facilities to determine current conditions and functionality, utilizing contracted services. This will be used to assist owners through guidance on steps necessary to maintain and sustain performance.
6. Enhance maintenance capability for the closed, underground system by utilizing technology for inspection of the system. This will provide data necessary to prioritize investment in system rehabilitation as well as provide on-going data for update of the system inventory.
7. Enhance response time for addressing routine maintenance and customer assistance, shifting the maintenance services from a reactive, high priority-only service to a program that will address routine as well as high hazard conditions within the drainage system.

Regulatory Assistance, Inspection and Plan Review

1. Provide technical assistance to private owners of stormwater facilities. As a first step in achieving, at a minimum, the original design performance for the facility, the County will provide guidance on maintenance techniques and processes, including education on responsibility of the owner for the system.
2. Increase the County's inspection capability for construction oversight as the County adopts new standards for facility design to incorporate Low Impact Development (LID) practices. Ensuring that the LIDs are constructed and maintained to effectively contribute to improved water quality is critical. A key role for this activity is to educate, both the contractor community and the owners of the LIDs.
3. Increase the resources for Plans Review to address the change in workload due to LID impacts in development standards and to increase the efficiency of current resources, giving a high level of service to the development community.
4. Increase the resources in the Maintenance and Stormwater Management Division (MSMD) for inspection of the drainage system, improving the level of service from the current ability to inspect portions of the system once every five years to once every three years. This is critical for maintenance oversight of the LID facilities to ensure that they are functioning as designed.

General Administration

1. Address coordination of the overall program of services for stormwater management by creation of a Director of Stormwater who will be responsible for the oversight of the two Divisions and for interdivisional coordination of the full program of services. Coordinated leadership is critical as the program of services expand over time. This position should report to the Public Works Director and provide overall vision and direction for the program.
2. Increase accountability for resources and for contracting activities in both Divisions for effective delivery of services. Increased effectiveness of the technical and professional staff of the Divisions can be achieved by consolidating management functions for budgeting, contracting, purchasing, administrative support, and systems operation (data management). This requires both reorganization of the current staff and increases in staff to address account

management, program and systems assessment, increased contracting activities and routine administrative support.

3. Provide sufficient resources to the Department of Tax Administration to support their role in billing and collecting user-fees. The stormwater program will purchase assistance from the DTA and should pay its "fair share" of the burden for this Department in billing, collecting, and accounting for the stormwater fees.
4. Contribute sufficient resources to the County's General Fund as compensation for utilization of general overhead services such as Human Resources, Management and Budget, County Attorney, County Executive, and Facilities Management. Often organizations utilize an indirect cost allocation for enterprise operations to support the cost to the General Fund for these important services in support of the program. The County needs to determine whether the stormwater utility will be responsible for this charge. It is currently calculated on the basis of 15.61% of the salary budget for the program. This can be as much as $11.5 million dollars over the first five years of the utility financing.

II-C. Performance Objectives – Level of Service

The following major program area performance objectives were used to evaluate the resources necessary to accomplish the priorities of the stormwater program.

- Bring all dams that are owned or operated by the County into full regulatory compliance within 24 months, addressing high-risk sites first. Maintain the integrity of the structures routinely, investing as necessary to rehabilitate dams.

- Maintain all necessary data in support of the floodplain management program and partner with FEMA to update the County floodplain maps within the first 36 months of the expanded program. Evaluate the Community Rating System program and determine an appropriate role for the County in support of this effort and implement strategies as needed.

- Provide annual, on-going support to the County Geographic Information System staff to bring the data layers that are important to the stormwater program up to date and to keep them current. This includes the update of the planimetric data on imperviousness as well as other databases on the drainage infrastructure, floodplains, stormwater management facilities, etc.

- Establish a full-time dedicated position for public education on all elements of the stormwater program and services provided by the County. Expand the public education program to reach all citizens and businesses over the next five years, addressing cultural and language issues as necessary.

- Initiate the update of all Watershed Plans no later than July 2007 with the goal of completion by July 2008.

- Initiate changes in the level of service for the operations and maintenance of the County owned or operated drainage system components, to move from a "high-risk only" response capability to resolving all requests for service within 12

months of receipt; requests from the community, service needs identified by routine inspection, and emergency service issues. This may result in projects shifting to the capital improvement program at which time they would be prioritized within the overall CIP program. It is anticipated that this level of service could be achieved within the first five years of the expanded program.

- Sustain the investment in the CIP at no less than 40% of the overall stormwater program budget over the next 20 years.

- Initiate and/or maintain a program of services that will meet the requirements of the MS4 permit on an annual basis. This includes a review of the permit in FY 2006 to position the County for the renegotiation of this permit in the first quarter of FY 2007.

- Incorporate Low Impact Development strategies, after evaluation of specific LIDs, into the PFM, beginning in FY 2006 and as technology changes; and maintain an assessment protocol to determine functionality, long-term maintenance requirements, education initiatives and needed improvements. This includes inspection and testing of the LID practices over time to ensure that the County can evaluate their performance and identify changes needed.

- Complete an assessment of the existing drainage infrastructure under County ownership and/or operation, including the underground system by FY 2010 and evaluate the impact of County operation of all stormwater management facilities, including LID practices.

III. Cost of Service

The level of service defined by the objectives identified above is translated into a projection of resources necessary to achieve these outcomes or initiate the steps necessary to achieve these outcomes over time. A number of assumptions have been made in order to define the cost of these services. In addition, several financial parameters and standards were used based on input from the Department of Management and Budget.

Assumptions and Financial Parameters:

1. Current staff resources are valued by the classification of the position and not on the basis of the salaries of the individuals holding the position today. This is done in recognition that turnover will occur and this is done to protect the confidential nature of this data. Personal services are set at mid-range for the grade assigned to the duties.
2. Personnel resources are escalated at a rate of 3.7% based on data from DMB.
3. Personnel resources are fully burdened to account for the supporting costs that address insurance, payroll taxes, retirement, etc.
4. If a change in program or level of service is not anticipated, and a program is maintained constant over the planning period, the cost of service is escalated three (3) percent annually to account for normal increases in cost of operation.

5. To determine the level of expenditure necessary to carry out new program initiatives such as construction inspection, capital project design, reduced response time to address maintenance requests, and increased watershed planning efforts, service costs are based on the use of internal staff to accomplish its goals. This is NOT a recommendation but a method to place a value the cost of service. Increases in personnel staffing is a policy decision of the Board and should be addressed in the normal annual budget process. Many services can be out-sourced and public-private partnerships can be very effective in instituting a change in level of service.
6. Resources address total County needs, not just the needs of the Stormwater Planning Division or the Maintenance and Stormwater Management Division. Needs for right-of-way acquisition, construction inspection, and billing management are included regardless of organizational assignment of the responsibility.
7. The program enhancements will be initiated in Fiscal Year 2006.
8. Cost assumptions:
    - Computers are on a three-year replacement schedule.
    - Heavy equipment will be amortized on a 10 year replacement schedule.
    - Cost for supplies, training, safety equipment, telephones, etc. are projected on the basis of $3,000 per employee, based on average expenditures in the past.

IV. Cost Projections

The following costs are presented by functional area for the six year planning period. Costs include both new initiatives and existing resources. This is NOT a budget but an evaluation of the resource demand projected to achieve the service level objectives.

The total summary of the cost of service is presented in two tables, with Table 1 representing the category of cost based on typical types of expenditures:

Personnel
Supplies
Services
Capital Expenditures

These categories represent the nature or the type of resource. Again, it is important to recognize that "personnel" does not define whether these are staff resources or contracted resources.

The second cost summary (Table 2) represents the cost of service by program functions identified above. This summary includes all new program elements and current budgeted resources.

Table 3 presents the Cost of Service summary, by program function, for the new initiatives only. It provides an overview of the six year plan. Resources are projected on a "building block" approach, recognizing that the County services will grow in a logical and orderly process. Everything cannot be accomplished in one year and adjusting to an expanded program is a challenge for existing staff. New procedures and tools

including public/private partnerships will be necessary. Building a strong program will require reevaluation of the plan on a routine basis including the testing of assumptions upon which this initial cost model was built.

Table 1 - Cost of Service by Type of Expenditure

Fairfax County Stormwater Program						
Stormwater Cost of Service Analysis/Rate Model						
Cost of Service Analysis Summary						
Consolidated Costs by Category						
	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
Personnel	$ 9,146,648	$ 11,416,397	$ 13,038,231	$ 15,385,544	$ 16,586,991	$ 17,200,710
Supplies	$ 2,515,245	$ 2,747,292	$ 2,688,394	$ 3,806,517	$ 3,446,424	$ 3,265,975
Services	$ 5,681,141	$ 6,532,367	$ 7,088,826	$ 7,621,649	$ 8,090,576	$ 7,622,889
Capital Expenditures	$ 14,858,000	$ 15,470,000	$ 18,070,000	$ 18,650,000	$ 18,650,000	$ 23,650,000
Total	$ 32,201,034	$ 36,166,056	$ 40,885,451	$ 45,463,710	$ 46,773,991	$ 51,739,574
Costs by Function						
	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
General Expenses						
Personnel	$ 849,668	$ 791,716	$ 821,010	$ 883,151	$ 915,828	$ 949,714
Supplies	$ 422,120	$ 433,120	$ 425,120	$ 433,120	$ 427,120	$ 408,120
Services	$ 258,175	$ 2,040,275	$ 2,293,443	$ 2,822,858	$ 2,823,404	$ 2,919,206
Capital Expenditures						
Subtotal	$ 1,529,963	$ 3,265,111	$ 3,539,573	$ 4,139,130	$ 4,166,352	$ 4,277,039
Engineering and Design						
Personnel	$ 690,369	$ 832,923	$ 1,187,674	$ 1,266,870	$ 1,395,364	$ 1,446,992
Supplies	$ -	$ -	$ 19,440	$ 3,600	$ 19,560	$ 13,500
Services	$ 2,688,000	$ 1,638,000	$ 1,560,960	$ 1,500,400	$ 1,511,040	$ 1,507,000
Capital Expenditures		$ -	$ -	$ -	$ -	$ -
Subtotal	$ 3,378,369	$ 2,470,923	$ 2,768,074	$ 2,770,870	$ 2,925,964	$ 2,967,492
Operations and Maintenance						
Personnel	$ 4,907,403	$ 5,999,495	$ 6,594,218	$ 7,941,866	$ 8,432,555	$ 8,744,559
Supplies	$ 1,853,825	$ 1,954,786	$ 1,960,659	$ 2,949,611	$ 2,645,594	$ 2,531,855
Services	$ 850,000	$ 810,000	$ 810,000	$ 860,000	$ 860,000	$ 260,000
Capital Expenditures	$ 1,600,000	$ 3,000,000	$ 5,000,000	$ 7,500,000	$ 7,500,000	$ 10,000,000
Subtotal	$ 9,211,229	$ 11,764,281	$ 14,364,877	$ 19,251,477	$ 19,438,149	$ 21,536,414
Plan Review and Erosion Control						
Personnel	$ 194,717	$ 415,353	$ 492,139	$ 635,639	$ 779,541	$ 808,384
Supplies	$ -	$ 151,886	$ 61,575	$ 182,386	$ 137,650	$ 93,500
Services	$ 1,203,416	$ 1,246,093	$ 1,290,348	$ 1,336,241	$ 1,383,832	$ 1,433,184
Capital Expenditures		$ -	$ -	$ -	$ -	
Subtotal	$ 1,398,133	$ 1,813,331	$ 1,844,062	$ 2,154,266	$ 2,301,023	$ 2,335,067
Construction Services						
Personnel	$ 894,904	$ 1,752,331	$ 2,199,370	$ 2,784,576	$ 3,120,945	$ 3,236,420
Supplies						
Services	$ 356,550	$ 648,000	$ 984,075	$ 952,150	$ 1,362,300	$ 1,403,500
Capital Expenditures	$ 8,958,000	$ 9,170,000	$ 13,070,000	$ 11,150,000	$ 11,150,000	$ 13,650,000
Subtotal	$ 10,209,454	$ 11,570,331	$ 16,253,445	$ 14,886,726	$ 15,633,245	$ 18,289,920
Watershed Management Planning						
Personnel	$ 1,609,587	$ 1,624,579	$ 1,743,820	$ 1,873,441	$ 1,942,759	$ 2,014,641
Supplies	$ 239,300	$ 207,500	$ 221,600	$ 237,800	$ 216,500	$ 219,000
Services	$ 325,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 100,000
Capital Expenditures	$ 4,300,000	$ 3,300,000		$ -	$ -	$ -
Subtotal	$ 6,473,887	$ 5,282,079	$ 2,115,420	$ 2,261,241	$ 2,309,259	$ 2,333,641

.

Table 2 - Cost of Service by Program Function

Fairfax County Stormwater Program

Stormwater Cost of Service Analysis/Rate Model

Cost of Service Analysis: All Costs, Summary by Cost Subcategory by Year

Major Cost Category	2006	2007	2008	2009	2010	2011
Cost Subcategory						
General Expenses						
General Stormwater Program Administration	$ 540,801	$ 567,864	$ 567,069	$ 582,542	$ 584,290	$ 573,325
Billing Operations	$ 146,879	$ 194,439	$ 197,933	$ 212,144	$ 216,294	$ 220,597
HR Functions	$ 124,280	$ 125,034	$ 128,772	$ 120,649	$ 112,669	$ 116,838
General Program Planning and Development	$ 134,367	$ 98,332	$ 101,970	$ 116,331	$ 120,635	$ 125,099
Budget and Cost Controls	$ 298,909	$ 209,361	$ 212,143	$ 225,616	$ 228,999	$ 232,507
Contract Management	$ 209,270	$ 212,525	$ 220,389	$ 228,543	$ 236,999	$ 245,768
Interagency Cooperative Activities						
Indirect Cost Allocations	$ -	$ 1,782,100	$ 2,035,268	$ 2,401,683	$ 2,589,229	$ 2,685,031
Cost and Rate Analysis	$ 3,624	$ 3,624	$ 3,758	$ 178,897	$ 4,042	$ 4,191
Emergency/disaster Management	$ 71,832	$ 71,832	$ 72,270	$ 72,724	$ 73,195	$ 73,683
Subtotal	$ 1,529,963	$ 3,265,111	$ 3,539,573	$ 4,139,130	$ 4,166,352	$ 4,277,039
Engineering and Design						
Design Criteria, Standards and Guidance	$ 47,191	$ 92,995	$ 96,436	$ 142,357	$ 147,624	$ 153,086
Design, Field and Operations Engineering	$ 667,915	$ 744,324	$ 750,219	$ 756,332	$ 762,671	$ 769,245
Maintenance and Field Engineering Support	$ 17,120	$ 17,120	$ 30,713	$ 20,810	$ 32,131	$ 28,798
Hazard Mitigation Planning	$ 23,152	$ 23,152	$ 84,247	$ 85,136	$ 25,818	$ 26,773
Dam Safety Program	$ 182,506	$ 182,506	$ 255,872	$ 247,714	$ 293,621	$ 293,376
Retrofiting Program	$ 4,530	$ 4,530	$ 83,934	$ 82,168	$ 85,208	$ 88,360
Flood Insurance Program	$ 8,623	$ 8,623	$ 55,582	$ 52,119	$ 81,173	$ 81,916
Community Rating System	$ 7,836	$ 7,836	$ 48,286	$ 50,072	$ 73,776	$ 76,506
Code Development and Zoning Support Services	$ 50,170	$ 84,245	$ 131,262	$ 136,118	$ 208,764	$ 216,488
GIS, Mapping and Database Management	$ 1,990,585	$ 737,602	$ 746,393	$ 755,509	$ 764,963	$ 774,767
Public Education/Outreach	$ 216,254	$ 205,504	$ 209,407	$ 213,456	$ 217,653	$ 222,007
Infrastructure Management Planning	$ 67,061	$ 267,061	$ 179,542	$ 132,115	$ 134,783	$ 137,550
Subtotal:	$ 3,378,369	$ 2,470,923	$ 2,768,074	$ 2,770,870	$ 2,925,964	$ 2,967,492
Operations and Maintenance						
General Maintenance Management	$ 439,234	$ 839,318	$ 921,190	$ 1,489,515	$ 1,514,407	$ 1,530,887
SW Management Facilities Maintenance	$ 987,593	$ 987,593	$ 806,131	$ 1,391,115	$ 1,109,266	$ 1,139,144
Conveyance System Maintenance	$ 1,558,341	$ 2,058,379	$ 2,199,669	$ 2,352,594	$ 2,452,485	$ 2,423,685
General Remedial Maintenance	$ 1,745,118	$ 1,961,640	$ 2,316,651	$ 3,190,852	$ 3,307,893	$ 3,388,920
Emergency Response Maintenance	$ 163,066	$ 163,066	$ 169,100	$ 175,357	$ 181,845	$ 188,573
Infrastructure Management Program	$ 1,453,374	$ 1,453,374	$ 1,500,489	$ 1,549,347	$ 1,600,013	$ 1,472,553
GASB 34	$ 234,598	$ 234,598	$ 236,618	$ 238,713	$ 240,885	$ 63,138
Field Data Collection	$ 383,972	$ 383,972	$ 515,211	$ 525,394	$ 671,356	$ 447,316
Public Drainage System Inspection and Regulation	$ 197,827	$ 197,827	$ 205,147	$ 212,737	$ 220,608	$ 228,771
Private Facilities Inspection and Regulation	$ 392,536	$ 428,944	$ 437,045	$ 566,096	$ 577,421	$ 589,166
Public Assistance and Complaint Response	$ 55,570	$ 55,570	$ 57,626	$ 59,758	$ 61,969	$ 64,262
Subtotal:	$ 7,611,229	$ 8,764,281	$ 9,364,877	$ 11,751,477	$ 11,938,149	$ 11,536,414
Plan Review and Erosion Control						
General Code Development and Review	$ 87,470	$ 239,052	$ 223,494	$ 265,451	$ 284,832	$ 255,222
Stormwater Systems Insp. - New Development	$ 58,059	$ 278,998	$ 279,212	$ 499,679	$ 577,506	$ 589,780
Regulatory Enforcement	$ 87,228	$ 87,228	$ 88,605	$ 90,034	$ 91,515	$ 93,051
General Permit Administration	$ 6,636	$ 6,636	$ 6,881	$ 7,136	$ 7,400	$ 7,674
Erosion and Sediment Control Program	$ 1,158,740	$ 1,201,417	$ 1,245,869	$ 1,291,966	$ 1,339,769	$ 1,389,341
Subtotal:	$ 1,398,133	$ 1,813,331	$ 1,844,062	$ 2,154,266	$ 2,301,023	$ 2,335,067
Construction Services						
Capital Improvements	$ 7,955,966	$ 8,871,836	$ 12,971,891	$ 10,596,751	$ 10,622,531	$ 13,149,264
Construction Project Management	$ 506,584	$ 972,425	$ 1,278,537	$ 1,490,323	$ 1,897,474	$ 1,873,128
Inspections	$ 55,093	$ 201,451	$ 255,693	$ 369,225	$ 382,886	$ 397,053
Conveyance System Rehabilitation	$ 1,885,470	$ 3,296,032	$ 5,306,986	$ 8,070,940	$ 8,092,065	$ 10,613,971
Contracted Survey Services	$ 155,600	$ 168,000	$ 369,000	$ 297,000	$ 396,000	$ 496,000
Land, Easement, and ROW Acquisition	$ 1,250,742	$ 1,060,587	$ 1,071,338	$ 1,562,488	$ 1,742,290	$ 1,760,504
Subtotal:	$ 11,809,454	$ 14,570,331	$ 21,253,445	$ 22,386,726	$ 23,133,245	$ 28,289,920
Watershed Management Planning						
Watershed Planning	$ 4,917,552	$ 3,927,297	$ 688,942	$ 756,748	$ 784,748	$ 813,784
BMP Development	$ 225,662	$ 227,911	$ 245,213	$ 264,051	$ 273,821	$ 283,952
Comprehensive Monitoring Program	$ 375,902	$ 369,542	$ 378,876	$ 388,870	$ 391,615	$ 399,378
Stream Protection and Restoration	$ 147,114	$ 143,843	$ 157,096	$ 171,673	$ 174,565	$ 181,252
BMP Programs and Activities	$ 159,509	$ 156,238	$ 169,950	$ 185,002	$ 188,387	$ 195,586
Used Oil and Toxic Materials	$ 39,741	$ 39,741	$ 41,211	$ 42,736	$ 44,317	$ 45,957
Spill Response and Clean Up	$ 29,512	$ 29,512	$ 30,604	$ 31,736	$ 32,910	$ 34,128
Program for Public Education and Reporting	$ 315,266	$ 140,266	$ 141,755	$ 143,300	$ 144,902	$ 146,564
Illicit or Cross Connections	$ 38,319	$ 38,319	$ 39,737	$ 41,207	$ 42,731	$ 44,312
Illegal Dumping	$ 78,169	$ 78,169	$ 79,211	$ 80,292	$ 81,412	$ 32,575
Multi-objective Planning and Support	$ 72,167	$ 62,627	$ 68,980	$ 76,042	$ 71,935	$ 75,052
Zoning Support	$ 32,009	$ 28,829	$ 31,241	$ 33,900	$ 32,847	$ 34,215
Landfills and Other Waste Facilities	$ 22,582	$ 22,582	$ 23,417	$ 24,284	$ 25,182	$ 26,114
Emergency Response	$ 20,385	$ 17,205	$ 19,187	$ 21,400	$ 19,884	$ 20,772
Subtotal:	$ 6,473,887	$ 5,282,079	$ 2,115,420	$ 2,261,241	$ 2,309,259	$ 2,333,641
TOTAL:	$ 32,201,034	$ 36,166,056	$ 40,885,451	$ 45,463,710	$ 46,773,991	$ 51,739,574

Table 3 - New Initiatives Only – Cost of Service

Fairfax County Stormwater Program						
Stormwater Cost of Service Analysis/Rate Model - New Initiatives Only						
Cost of Service Analysis: All Costs, Summary by Cost Subcategory by Year						
Major Cost Category	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**
Cost Subcategory						
General Expenses						
General Stormwater Program Administration	$ 93,618	$ 428,722	$ 422,779	$ 432,912	$ 429,125	$ 412,419
Billing Operations	$ 146,879	$ 194,439	$ 197,933	$ 212,144	$ 216,294	$ 220,597
HR Functions	$ 44,366	$ 125,034	$ 128,772	$ 120,649	$ 112,669	$ 116,838
General Program Planning and Development	$ 54,308	$ 98,332	$ 101,970	$ 116,331	$ 120,635	$ 125,099
Budget and Cost Controls	$ 13,577	$ 75,186	$ 77,968	$ 91,441	$ 94,824	$ 98,332
Contract Management	$ 87,983	$ 212,525	$ 220,389	$ 228,543	$ 236,999	$ 245,768
Interagency Cooperative Activities						
Indirect Cost Allocations	$ -	$ 679,847	$ 847,791	$ 1,148,406	$ 1,316,934	$ 1,365,661
Cost and Rate Analysis	$ -	$ 3,624	$ 3,758	$ 178,897	$ 4,042	$ 4,191
Emergency/disaster Management	$ -	$ 11,832	$ 12,270	$ 12,724	$ 13,195	$ 13,683
Subtotal	$ 440,730	$ 1,829,541	$ 2,013,630	$ 2,542,048	$ 2,544,717	$ 2,602,588
Engineering and Design						
Design Criteria, Standards and Guidance	$ -	$ 45,805	$ 47,499	$ 91,609	$ 147,624	$ 153,086
Design, Field and Operations Engineering	$ -	$ 76,408	$ 79,236	$ 82,167	$ 177,671	$ 184,245
Maintenance and Field Engineering Support	$ -	$ -	$ 12,960	$ 2,400	$ 13,040	$ 9,000
Hazard Mitigation Planning	$ -	$ -	$ 60,239	$ 62,468	$ 97,556	$ 101,165
Dam Safety Program	$ -	$ -	$ 73,199	$ 64,868	$ 110,596	$ 110,165
Retrofiting Program	$ -	$ -	$ 79,236	$ 82,168	$ 85,208	$ 88,360
Flood Insurance Program	$ -	$ -	$ 46,639	$ 42,845	$ 71,557	$ 71,944
Community Rating System	$ -	$ -	$ 40,159	$ 41,645	$ 65,037	$ 67,444
Code Development and Zoning Support Services	$ -	$ 76,408	$ 79,236	$ 82,167	$ 152,817	$ 158,471
GIS, Mapping and Database Management	$ 1,826,409	$ 567,350	$ 569,842	$ 572,427	$ 575,106	$ 577,885
Public Education/Outreach	$ 189,986	$ 179,236	$ 182,168	$ 185,208	$ 188,360	$ 191,630
Infrastructure Management Planning	$ -	$ 200,000	$ 110,000	$ 60,000	$ 60,000	$ 60,000
Subtotal:	$ 2,091,394	$ 1,240,633	$ 1,476,595	$ 1,466,937	$ 1,842,350	$ 1,872,016
Operations and Maintenance						
General Maintenance Management	$ 300,980	$ 701,064	$ 777,821	$ 1,340,841	$ 1,360,232	$ 1,371,008
SW Management Facilities Maintenance	$ 200,000	$ 200,000	$ -	$ 565,759	$ 263,975	$ 273,180
Conveyance System Maintenance	$ 30,075	$ 530,113	$ 625,459	$ 730,742	$ 781,227	$ 701,193
General Remedial Maintenance	$ 652,770	$ 869,292	$ 1,198,131	$ 2,045,191	$ 2,134,089	$ 2,185,929
Emergency Response Maintenance	$ -	$ -	$ -	$ -	$ -	$ -
Infrastructure Management Program	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ -
GASB 34	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ 180,000	$ -
Field Data Collection	$ 240,000	$ 240,000	$ 365,913	$ 370,571	$ 510,805	$ 280,825
Public Drainage System Inspection and Regulation	$ -	$ -	$ -	$ -	$ -	$ -
Private Facilities Inspection and Regulation	$ 250,000	$ 286,408	$ 289,236	$ 412,817	$ 418,471	$ 424,335
Public Assistance and Complaint Response	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal:	$ 2,033,824	$ 3,186,877	$ 3,616,560	$ 5,825,922	$ 5,828,800	$ 5,236,470
Plan Review and Erosion Control						
General Code Development and Review	$ -	$ 151,583	$ 132,788	$ 171,389	$ 187,290	$ 154,070
Stormwater Systems Insp. - New Development	$ -	$ 220,939	$ 219,005	$ 437,244	$ 512,761	$ 522,639
Regulatory Enforcement	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000
General Permit Administration	$ -	$ -	$ -	$ -	$ -	$ -
Erosion and Sediment Control Program	$ -	$ -	$ -	$ -	$ -	$ -
Subtotal:	$ 50,000	$ 422,522	$ 401,793	$ 658,633	$ 750,051	$ 726,709
Construction Services						
Capital Improvements	$ 7,955,966	$ 8,582,476	$ 12,583,842	$ 10,194,344	$ 10,205,235	$ 12,716,529
Construction Project Management	$ 506,584	$ 876,178	$ 1,025,911	$ 1,081,187	$ 1,408,101	$ 1,365,647
Inspections	$ 55,093	$ 114,263	$ 165,280	$ 275,466	$ 285,659	$ 296,228
Conveyance System Rehabilitation	$ 1,885,470	$ 3,296,032	$ 5,306,986	$ 8,070,940	$ 8,092,065	$ 10,613,971
Contracted Survey Services	$ 155,600	$ 168,000	$ 369,000	$ 297,000	$ 396,000	$ 496,000
Land, Easement, and ROW Acquisition	$ 1,250,742	$ 993,608	$ 1,001,882	$ 1,490,461	$ 1,667,598	$ 1,683,049
Subtotal:	$ 11,809,454	$ 14,030,558	$ 20,452,900	$ 21,409,399	$ 22,054,657	$ 27,171,424
Watershed Management Planning						
Watershed Planning	$ 4,630,586	$ 3,640,331	$ 391,359	$ 448,154	$ 464,736	$ 481,931
BMP Development	$ 76,289	$ 78,538	$ 90,314	$ 103,420	$ 107,247	$ 111,215
Comprehensive Monitoring Program	$ 9,860	$ 3,500	$ 6,320	$ 9,560	$ 5,300	$ 5,800
Stream Protection and Restoration	$ 58,254	$ 54,984	$ 64,949	$ 76,117	$ 75,473	$ 78,493
BMP Programs and Activities	$ 58,254	$ 54,984	$ 64,949	$ 76,117	$ 75,473	$ 78,493
Used Oil and Toxic Materials	$ -	$ -	$ -	$ -	$ -	$ -
Spill Response and Clean Up	$ -	$ -	$ -	$ -	$ -	$ -
Program for Public Education and Reporting	$ 275,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000	$ 100,000
Illicit or Cross Connections	$ -	$ -	$ -	$ -	$ -	$ -
Illegal Dumping	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ 50,000	$ -
Multi-objective Planning and Support	$ 14,790	$ 5,250	$ 9,480	$ 14,340	$ 7,950	$ 8,700
Zoning Support	$ 4,930	$ 1,750	$ 3,160	$ 4,780	$ 2,650	$ 2,900
Landfills and Other Waste Facilities	$ -	$ -	$ -	$ -	$ -	$ -
Emergency Response	$ 4,930	$ 1,750	$ 3,160	$ 4,780	$ 2,650	$ 2,900
Subtotal:	$ 5,182,894	$ 3,991,086	$ 783,690	$ 887,268	$ 891,478	$ 870,432
TOTAL:	$ 21,608,297	$ 24,701,217	$ 28,745,168	$ 32,790,206	$ 33,912,051	$ 38,479,639

V. Funding Options

Phase I of the Stormwater Needs Assessment Project included a detailed evaluation of funding options for the County. That information is not repeated here. The funding options analysis completed during this phase of the report addressed the implementation of a service fee for stormwater, with the creation of a stormwater enterprise fund or utility.

Several ways of structuring and calculating stormwater service fees (or "user charges") are employed by cities and counties throughout the United States. This section of the report summarizes several rate methodology options available to Fairfax County. The basic parameters employed for rate structures, plus modifying factors that can be applied to the various methodologies, are described. Other funding methods that can be blended with fees are identified.

The initially preferred rate structure and mix of funding may have to be adjusted as needs change over time. Information will flow from the capital improvement master plan in the future that may suggest that substantial capital investment is needed in the drainage systems. More remedial repairs and capital improvement needs may be identified as the Watershed Plans are implemented and existing systems continue to age. Stormwater quality management may become an even more demanding part of the program as the County's VPDES permit is renewed. It is anticipated that the Potomac Tributary Strategy recently established by the State will be the foundation for performance parameters in the County's VPDES permit to be reissued in FY 2007.

V-A. Evaluation Criteria

The consultant team's experiences implementing a variety of stormwater funding methods elsewhere suggest that the most important factors in selecting a practical approach are the local circumstances, practices, and politics. Every community is different and needs a solution that fits its specific situation. Beyond circumstances unique to Fairfax County or the Virginia statutes, the following criteria were applied during the initial evaluation of the feasibility of the utility and during implementation discussions for the utility:

- Fund the program using a methodology that links the demand for services to the amount paid by any particular property owner.
- Provide a mechanism that recognizes positive behaviors by the land owner to reduce impacts on flow and pollutant loading.
- Dedicate the funding to the objectives of the stormwater program where the monies cannot be redirected to other competing priorities.
- Utilize a funding strategy that encourages greener development.
- Make the funding mechanism an equitable strategy, bringing all properties into the funding base, not just those paying real estate and other general fund revenues.

- Apply the funding strategy uniformly across the County.
- Utilize bond debt to support the capital improvement program.

None of the service charge rate structures or secondary funding methods examined during the preparation of the final policy for the utility is "perfect" under such a broad range of criteria. The listed order of the criteria above does not imply a priority, and no single consideration should outweigh the others to the extent that a rate methodology or secondary funding method is selected or rejected for any one reason.

V-B. Methodologies for Cost Allocation

The methodologies reviewed included *imperviousness*, *imperviousness and percent imperviousness*, *imperviousness and gross parcel area*, and *gross area with modifying factors.* Each methodology is evaluated against the criteria listed above and the findings are provided following this summary.

Preliminary Recommendation for Rate Methodology: The primary methodology for allocation of costs recommended is “imperviousness” on the property with a secondary factor of the gross parcel area. Imperviousness has been evaluated and identified as the key contributor to demand for services in stormwater, whether it is for routine drainage, flood controls, public safety, or water quality. There exists a strong body of research detailing the correlation between the development of a parcel and the impacts of that development on the drainage system and the overall services to be provided by local governments throughout the nation. It is recommended that gross area be included as a secondary rate factor to address those services that must be provided regardless of the presence of imperviousness and that should be fairly borne by all properties within the County. This increases the equity of the rate methodology, not limiting it to only land that has been disturbed and by taking into account the total lot size along with the amount of imperviousness.

Modifying Factors: Many modifying factors were considered in the development of the rate structure preliminary recommendation. These includes such items as *water quality impact factor*, *service charge credits*, *watershed surcharges*, *base rate for fixed costs*, and *varying approaches to single family residential properties*. Upon completion of the evaluation for Fairfax, the modifying factors of service charge credits and a tiered single family detached-housing rate structure are recommended. Service charge credits provide an opportunity for the County to recognize contributions made by private investment in the drainage system and in water quality protection that reduce the demand for service. A tiered single family residential rate structure also increases the equity by recognizing the varying amount of imperviousness present within this relatively homogenous land use activity. The County should consider whether it wants to place a limit on the number of billing units to be charged single family detached residential, which often occurs in the initial establishment of stormwater utility rates.

Preliminary Recommendation on Rate Modifiers: Combining a primary methodology of imperviousness and gross parcel area with the modifying factors of a multi-tiered residential rate with service charge credits will provide the County will an equitable basis of cost allocation that is legally defendable, that can be understood by the general public through a targeted education program, and that will be administratively manageable. Over time the

County may choose to refine the rate structure to include additional elements of watershed surcharges, water quality impact factors, and a base rate for fixed costs. These additional factors can refine the equity of cost allocation but are not critical in the short term to effectively establish a stormwater user-fee funding strategy. These additional factors often require more detailed program cost tracking and administrative overhead to ensure fair allocation of costs occur.

V-C. Estimated Rate

Estimated Rate Based on Imperviousness ONLY: Upon completion of the program evaluation and analysis of the projected service enhancements to begin to build a proactive stormwater program, an analysis of potential rates was undertaken. The approach to estimating a rate was to use Imperviousness only as the rate methodology. This was done due to constraints on data availability. AMEC utilized the data available from the Department of Tax Administration, the data analysis utilized in the 1997 rate evaluation, and existing GIS data provided by the County. Should the Board of Supervisors choose to pursue the implementation of a user-fee as the primary funding method for the program, an update of the imperviousness planimetric data needs to be undertaken. It is estimated that an update will cost $1,750,000. Once completed, the County should adopt an annual process to ensure that the data is current.

Basic assumptions regarding fund balance, level of other incomes such as the use of Pro Rata Share and fees for regulatory inspections, debt service and credit initiatives were made based on input from County staff. If the Board moves forward with this effort, these key policies will be finalized in a policy statement and factored into a final rate analysis.

VI. Rate Analysis

Rate analysis is accomplished by translating the cost of service into a cash flow demand, taking into consideration other revenues that may be utilized to address the program and increased demand for cash to address bad debt, cash reserves, bond sales expenses, offsets and credits. In addition, the unit for billing the service fee has to be established so a “fee due” can be calculated for each property. To define a fee for the recommended program of services over the six year planning period, the consultant utilized the data analysis completed in 1997, making the assumption that the “average” imperviousness by land use category (i.e., commercial, industrial, single family residential, town homes, apartments, condos) is consistent over time. The current real estate database provides the information necessary for determining the number of parcels per land use (in 2004).

The average imperviousness for single family residential property utilized in the analysis is **3,398 square feet**. This is used as the rate unit for analysis of billing units for all other property land use categories. The total number of billing units estimated is 442,669 and is distributed as follows:

Land Use	Number of Billing Units	Percent of Total Units
Single Family Residential	172,339	39%
Multifamily Housing		
Apartments	12,175	3%
Townhomes	43,038	10%
Condos	9,812	2.5%
Mobile Homes	1,569	0.5%
Commercial	156,132	34%
Industrial	6,691	2%
Institutional	40,913	9.5%
Total Billing Units	**442,669**	

Properties owned by all governments have been excluded from this calculation, including properties owned by the Fairfax County School Board and the Fairfax County Park Authority, based on the enabling legislation for user-fee development. This is a conservative estimate for use in the rate analysis and results in an under-estimate of the total billing units because the necessary data for an exact analysis from current conditions is not available.

Financial Factors Utilized in the Cash Flow Analysis:

- Interest earnings – 2 percent of annual cash flow
- Bad debt – 1 percent of annual cash generated by the fee
- Pro Rata appropriated funds – set at $5,400,000 annually
- Operating reserves – 10 percent of operational expense only
- Inflation rate on operating costs – 3 percent annually
- Credits – 2 percent of cash generated annually
- Growth rate for billing units – 2 percent annually

Cash Flow Analysis

Table 4 summarizes the cash flow analysis using the financial factors outlined above and based on the following assumptions:

- The rate will remain constant for two fiscal years, with adjustments in rates in FY 2009 and FY 2011.
- An update of the rate model will occur in FY 2010 to validate the program assumptions and to project the cash demands for the next five year period.

Fiscal Year	Rate per Billing Unit	
	Monthly	Annually
2007	6.46	77.52
2008	6.46	77.52
2009	7.40	88.80
2010	7.40	88.80
2011	7.95	95.40

Table 4 - Cash Flow Analysis

Stormwater Cost of Service Analysis/Rate Model Revenue/Expenditure (Cash Flow) Analysis					
	Year 1	Year 2	Year 3	Year 4	Year 5
Expenses					
Annual Operating Expense	$ 21,002,285	$ 23,138,099	$ 27,190,839	$ 28,504,712	$ 28,448,907
Annual Capital Expense and Bonded Capital Expense	$ 15,470,000	$ 18,070,000	$ 18,650,000	$ 18,650,000	$ 23,650,000
Subtotal: with Inflation	$ 36,472,285	$ 41,971,656	$ 46,738,137	$ 48,095,368	$ 53,037,721
Bond Sale Costs and Debt Service	$ -	$ -	$ -		
Bond Debt Service Coverage	$ -	$ -	$ -	$ -	$ -
Operating Fund Balance and Emergency Reserve- Unappropriated	$ 2,100,228	$ 618,855	$ 131,387	$ (5,581)	$ 93,881
Total: Expenses	$ 38,572,513	$ 42,590,512	$ 46,869,524	$ 48,089,787	$ 53,131,602
Other Revenues					
Funds Carried Forward	$ -	$ 1,492,967	$ 44,370	$ 618,161	$ 845,450
Bond Sales Receipts and Assocated Funds	$ -	$ -	$ -	$ -	$ -
Other Fees and Charges (Pro Rata)	$ 5,400,000	$ 5,400,000	$ 5,400,000	$ 5,400,000	$ 5,400,000
Interest Income	$ 420,046	$ 462,762	$ 543,817	$ 570,094	$ 568,978
Recovered Delinquencies		$ 332,542	$ 388,550	$ 396,321	$ 434,292
Other Resources (Fees for E&S)	$ 956,874	$ 992,278	$ 1,028,993	$ 1,067,065	$ 1,106,547
Total: Other Revenues	$ 6,776,920	$ 8,680,550	$ 7,405,730	$ 8,051,642	$ 8,355,267
Service Fee Revenue Requirement	$ 31,795,594	$ 33,909,962	$ 39,463,795	$ 40,038,146	$ 44,776,335
Revenue Stream Reduction Allowances					
Delinquencies and Bad Debt	$ 343,181	$ 350,045	409,000	417,180	457,150
Offsets					
Credits	686,362	700,089	409,000	417,180	457,150
Total: Revenue Reduction Allowances	$ 1,029,543	$ 1,050,134	$ 817,999	$ 834,359	$ 914,300
Adjusted Service Fee Revenue Requirement	$ 32,825,137	$ 34,960,096	$ 40,281,794	$ 40,872,505	$ 45,690,635
Estimate of Service Fee Needed/Year					
Annualized ERU Revenue Requirement	$ 32,825,137	$ 34,960,096	$ 40,281,794	$ 40,872,505	$ 45,690,635
Number of ERU	442,700	451,554	460,585	469,797	479,193
Estimated Monthly Charge per ERU	$ 6.18	$ 6.45	$ 7.29	$ 7.25	$ 7.95
Service Fee Recommendation					
Recommended Monthly Charge per ERU	$ 6.46	$ 6.46	$ 7.40	$ 7.40	$ 7.95
Estimated Annual ERU Revenue	$ 34,318,104	$ 35,004,466	$ 40,899,955	$ 41,717,954	$ 45,714,985
Estimated Year-end Revenue Surplus (Deficit)	$ 1,492,967	$ 44,370	$ 618,161	$ 845,450	$ 24,351
Available Funds for Appropriation in Following Year	6.5%	0.2%	2.2%	3.0%	0.1%

VII. Impacts of Service Fees on Various Properties in the County

After completion of the preliminary rate analysis, the Consultant Team evaluated the impact of the use of service fees on various properties in the County. The use of service fees, based on demand as measured by the presence of imperviousness on each property, shifts the burden to those who place the *greatest demand for County services*. Several properties were evaluated to demonstrate the shift from a "value" basis for

supporting stormwater (property tax) to a fee basis (imperviousness). The data below assumes the following:

- A tax rate of $1.03
- The value of the property for tax evaluation is based on the Department of Tax Administration's data, provided in March 2005.
- The number of billing units for the fee estimate is based on evaluation of imperviousness taken from current County aerial photography and digitally measured for each property studied.
    - The billing unit is 3,398 square feet of imperviousness.
    - The annual fee is $77.52 per ERU.
- The estimated tax bill is calculated using a formula of "assessment divided by 100, multiplied by $1.03."
- The portion of the tax bill for stormwater is based on the formula:
    - estimated tax bill divided by 103 to establish what the value of one cent is for their bill;
    - take the value of one cent raised and multiply by the number of cents necessary to fund the stormwater program (total budget divided by $17.9 million – the amount one cent is projected to raise in FY 2006, county-wide).

Table 5 – Comparison of Property Tax to Fee Revenues

Property	Est. 2005 Tax Bill Based on $1.03 Rate	Portion of Potential Tax for SW	Est. Fee $77.52 Annually Per ERU
Fair Oaks Mall	**$3,144,778**	**$ 58,847**	**$ 81,241**
Tysons Park Inc	**$ 595,140**	**$ 11,136**	**$ 5,891**
Capital One Bank Bldg.	**$1,529,204**	**$ 28,615**	**$ 15,890**
Lord of Life Lutheran Church	**none**	**none**	**$ 1,402**

The data samples represent three commercial buildings and a church. Two of the three commercial buildings are multi-storied and have a significant tax valuation. The third commercial property is a shopping center (Fair Oaks Mall) whose characteristics include large open parking areas, on flat-lots, and a linear building foot-print. The Church was included to demonstrate that properties currently not paying into the property tax pool of resources would be included in a fee-based revenue source. The shift in burden is representative of the funding principle ***that the amount any property pays for stormwater services should be driven by demand or need for service rather than***

by value of the property. This principle was defined by the Stormwater Advisory Committee as one important factor in determining how to fund the stormwater program.

The Washington Post provided a comparison of single family home property valuations for Fairfax County. The data was used to evaluate the shift in revenue generation from a real estate tax to a fee. The same approach was used to determine the amount of the tax bill dedicated to stormwater. The estimated fee utilizes a fixed fee for single family residential properties. This is a key policy decision that would need to be made, if the Board of Supervisors acts to create a utility. Data on imperviousness for each parcel is not currently available.

Table 6 – Comparison of Property Tax to Fees for Residential Property

Area	Average Valuation	2005 SW Portion of Tax Bill	Estimated Fee
Annandale	$383,488	73.91	77.52
Burke	$373,686	72.03	77.52
Chantilly	$425,192	81.95	77.52
Clifton	$579,342	111.65	77.52
Fairfax Station	$639,809	123.31	77.52
Great Falls	$770,709	148.54	77.52
Lorton	$294,696	56.80	77.52
McLean	$755,539	145.63	77.52
Oakton	$605,294	116.66	77.52
Reston	$362,440	69.87	77.52
Springfield	$362,725	69.93	77.52

In both commercial and residential properties, the examples show the impact on each property owner of the decision to use property value versus demand (as measured by imperviousness). Equity and fairness can be more easily demonstrated through the use of fees than property tax.

VIII. Recommendations of the Consultant Team:

It is recommended that the stormwater management program as defined through this assessment be enhanced over the next decade to take positive steps for implementation of water quality and water quantity protection measures that will contribute to a sustainable quality of life for all of Fairfax County.

It is the recommendation of the Consultant Team that the County establish a stormwater enterprise fund for FY 2006 and that during the first year of operation the resources of the fund be support by the General Fund. During FY 2006, the stormwater utility fee will be fully analyzed and a schedule of rates be established by the Board of Supervisors during their budget adoption for FY 2007. It is further recommended that the General Fund be relieved of the burden to support the stormwater program in FY 2007, with a property tax reduction as appropriate.

This recommendation is supported by the guiding principles identified by the Stormwater Advisory Committee. The shift from General Fund support to an enterprise fund will meet the long-term needs for a stable, equitable, adequate and fair approach to resource generation for the program. In addition, it is recommended that the program of Pro Rata Shares be eliminated and a new program of in-lieu-of-construction fees be established to provide for developer contributions to regional facilities when the site under development is better served through a regional solution rather than through on-site controls.

It is recommended that a program of credits be established as well as a process for appeal and fee-adjustment, both of which need to be created during the FY 2006 year of implementation. Credits are an important component of an effective user-fee system, recognizing the contributions of the private property owners in the overall performance of the drainage system. Credits should be considered for both water quality and water quantity protection. Consideration should be given for credits that address non-structural as well as structural Best Management Practices that support the overall goals of the stormwater program.

Tributary Strategy Overview for Fairfax County

In January 2005, the Virginia Secretary of Natural Resources released the Commonwealth's Chesapeake Bay Nutrient and Sediment Reduction Tributary Strategy (Tributary Strategy), identified by the Secretary as a first step in meeting the necessary reductions of targeted nutrients and sediment called for in the Chesapeake Bay Agreement of 2000. While the Tributary Strategy document does not offer a breakdown of potential impacts by locality, the pollution reduction goals for the Potomac River basin have several potential impacts on the future water quality programming that may be needed in Fairfax County through 2010.

The Tributary Strategy offers refined nutrient and sediment reductions goals that have been established to meet the Chesapeake Bay Program's developed criteria that take into account the varying needs of different plants and animals and the differing conditions found throughout the Bay. These "living indicator" criteria include:

- **Water clarity** – which ensures that enough sunlight reaches underwater bay grasses that grow on the bottom in most shallow areas;
- **Dissolved oxygen** – which ensures that enough oxygen is available at the right time during the right part of the year to support aquatic life, including fish larvae and adult species; and
- **Chlorophyll a** – the pigment contained in algae and other plants that enables photosynthesis. Optimal levels reduce harmful algae blooms and promote algae beneficial to the Bay's food chain.

The Tributary Strategy outlines the nutrient and sediment reductions in each of Virginia's major Chesapeake Bay river basins. Fairfax County falls entirely within the Potomac River basin. The constituents targeted for reduction in Virginia's portion of the Chesapeake Bay include nitrogen, phosphorus, and sediment. The 2010 Tributary Strategy nutrient and sediment reduction goals and cap load allocations for the Potomac basin represent a 43.8% reduction in total nitrogen, a 28.2% reduction in total phosphorus, and a 14.4% reduction in sediment, respectively, from reduction progress measured in 2002.

Implementation strategies for the Tributary Strategy focus on both point source nutrient reductions as well as nutrient and sediment reductions through non-point source best management practices (BMPs). The point source strategy focuses on waste load allocations related primarily to industrial and wastewater treatment facility improvements that do no affect the County's stormwater management program. The Tributary Strategy outlines a variety of agricultural and urban non-point source implementation strategies that may directly affect the County's stormwater management programming and initiatives between now and 2010. The most relevant initiatives and recommendations that the Virginia Department of Conservation and Recreation (DCR), designated as the state's lead non-point source control agency in the Commonwealth, have committed to in the Tributary Strategy are outlines below. These commitments will directly impact local stormwater management programming for all communities currently covered under a VPDES MS4 permit and currently implementing the requirements of the Chesapeake Bay Preservation Act:

Non-Point Source Implementation Strategy #3 - The Consolidation and Strengthening of the Virginia Stormwater Management Program

Year 2005-2007 Stormwater Initiatives

- Insure 100 percent coverage by an individual permit for all MS4 Phase I localities.
- Develop guidelines on what is an acceptable stormwater management program so localities with MS4s, localities located in the CBPA and localities electing to adopt stormwater management programs may utilize the guidelines in developing their programs for delegation by July 1, 2006.
- Revise the existing Stormwater and ESC handbooks to integrate the program areas and incorporate new local government tools such as stormwater and LID planning and design principles.

Year 2008-2010 Stormwater Initiatives

- ***MS4 programs, both Phase I and Phase II, will be examined to determine, what if any, improvements will be needed to increase the emphasis on meeting specific watershed goals.***
- Establish a training and certification classification type for local stormwater program management that equips local government staff to adequately implement MS4 and construction site permitting programs.

Non-Point Source Implementation Strategy #4 - Enhancing Implementation of the Virginia Erosion and Sediment Control Program

Year 2005-2007 Erosion and Sediment Control Enhancements

- Continue existing and develop new grant and cost-share programs and other incentives to promote LID and implement BMP retrofits through demonstration projects, local development roundtables and other methods.
- Revise the existing ESC and Stormwater handbooks to integrate the program areas and incorporate new local government tools such as stormwater and LID planning and design principles.

Year 2008-2010 Erosion and Sediment Control Enhancements

- Fund and implement BMP cost-share or other incentive program approaches to accelerate LID and BMP retrofit installation.

Non-Point Source Implementation Strategy #5 - Strengthen Implementation of the Chesapeake Bay Preservation Act

Year 2005-2007 Program Initiatives

- Seek increased funding for local program implementation.
- Support demonstration projects, such as stormwater management retrofits on redevelopment sites or replacement of failing septics with denitrification systems within Bay Act jurisdictions.

The highlighted statement in Strategy #3 outlines the framework for inclusion of local load cap allocations into municipal MS4 permits if load reductions have not been accomplished via other means prior to 2008. It should be noted that Fairfax County's current Phase I MS4 permit will expire, and subsequently be renegotiated, in 2007. Other initiatives, such as additional LID practices to reduce the impact of stormwater on local receiving channels line up with the County's current efforts to establish local LID guidelines and design standards. Other initiatives include efforts to seek increased funding for local program implementation at the state level, though no clear avenue to a funding source has been identified.

The overall estimated cost for Tributary Strategy implementation throughout Virginia is roughly $9.9 billion. For the Potomac Basin, the cost estimates for implementation are outlined below by BMP category. Of note for Fairfax County, roughly $2.1 billion of the $2.7 billion dollar estimated cost of implementation in the Potomac Basin is generated through the implementation of Urban BMPs. While these cost estimate breakdowns are not provided by community, much of Fairfax County falls into the urban land use classifications outlined in the Tributary Strategy ("pervious urban" and "impervious urban"). In addition, the vast majority of the Urban BMP implementation costs are recognized in the Tributary Strategy as capital costs, denoting the need for significant capital investment in BMP implementation in areas with urban land use classifications in order to meet the basin's nutrient and sediment load cap allocation targets.

Potomac Basin Estimated Cost Summary (in Millions of Dollars)

	Capital Costs	**Tech Assistance**	**O & M**	**Total Cost**
Total Cost for Agriculture BMPs	$116	$12	$6	$133
Total Cost for Urban BMPs	$1,662	$316	$141	$2,118
Total Cost for Mixed Open BMPs	$26	$5	$0.5	$32
Total Cost for Forest BMPs	$0.1	$0.01	$0	$0.1
Total Cost for Septic BMPs	$26	$3	$0	$29
Total Costs for Point Source Reductions	$362	$0	$18	$380
Potomac Basin Grand Total				$2,692
Virginia Statewide Grand Total				$9,997

Source: Table C-2, page 71

Additional Issues:

It should be noted that the estimated cost summary represents the cost to achieve the "Cap". An equally important challenge that is not really addressed here is how to maintain the Cap in perpetuity. While the Chesapeake Bay Preservation Ordinance is a good start, it does not always result in "no-net-increase" since it is based on average watershed conditions. As a result, there will be a slow increase over time which will need to be offset by reductions during redevelopment or additional retrofits in existing areas.

The cost summary represents a "first wave" of a longer term commitment. O&M costs cover the life-time of the facility in questions (which can range from just a few years to over 50 years). However, just like any infrastructure, eventually the infrastructure will need to be replaced, and a new capital investment for replacement will be required. This condition presents a sound justification for a dedicated long-term funding program.

While the Tributary Strategy does not include costs for Fairfax County, it is relatively simple to determine the percentage of the total cost. According to 2002 Chesapeake Bay Program modeling data, there is a total of 446,917 acres of pervious urban and impervious urban land. Fairfax County represents 126,056 acres, or approximately 42% of the total in the Potomac Basin. Therefore, for planning purposes, costs for Fairfax County are approximately $708 million in capital costs, and $903 million in total costs. It is noted that not all of these costs will be borne on the County government, but are spread among developers, the State, and County.